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ABSTRACT

Four issues of this journal on educating gifted students offer articles for professionals and parents, book reviews, and resource/curriculum suggestions. The issue on mathematics and sciences discusses recognizing mathematical talent, increasing rigor in science courses; adding breadth, depth, and complexity in mathematics; using science to decrease perfectionism; removing barriers to achievement by gifted females; developing curriculum strategies in science; and examining the Mozart effect and mathematics. The issue on identification considers common problems in identification; what parents can expect; when a child doesn't qualify; roles and responsibilities of educators and parents; finding gifted English learners; nontraditional screening; international perspectives; and measurement resources. The issue on encouraging passion, leadership and ethics in gifted youth addresses the many facets of passion; systematic risk taking as part of leadership training; sources of moral integrity within gifted children; encouraging leadership in young women; expressing passion through student voices; organizing a student leadership conference; leadership training through a schoolwide drama and music production; and classroom Socratic seminars. The issue focused on highly and profoundly gifted children discusses characteristics of the highly and profoundly gifted; identification; radical acceleration; the home schooling option; early college entry; social and emotional need; and Internet resources. (Individual articles contain references.) (DB)

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COMMUNICATOR

CALIFORNIA ASSOCIATION FOR THE GIFTED

VOLUME 31, NO 1, WINTER 2000

ISSUE HIGHLIGHT

MATHEMATICS & SCIENCE

Mathematics and science are major components of the technological world in which we live. As we enter the 21st century, it is essential that our students develop the knowledge and skills necessary to become leaders and creative problem-solvers in an increasingly complex society. In this issue we focus on:

- **Recognizing mathematical talent**
- **Increasing rigor in science courses**
- **Adding breadth, depth, and complexity in mathematics**
- **Using science to decrease perfectionism**
- **Removing barriers to achievement by gifted females**
- **Developing curriculum strategies in science**
- **Examining the Mozart Effect and mathematics**

UPCOMING ISSUE HIGHLIGHTS

Spring - Identification

Summer - Developing Passion, Leadership, Ethics

Fall - Highly Gifted

Winter - Examining Issues in Gifted Education

Developing and Serving the Needs of Mathematically Promising Students

BY LINDA JENSEN SHEFFIELD

The student most neglected, in terms of realizing full potential, is the gifted student of mathematics. Outstanding mathematical ability is a precious societal resource, sorely needed to maintain leadership in a technological world.

—National Council of Teachers of Mathematics, 1980

Nearly twenty years later, this statement from the National Council of Teachers of Mathematics (NCTM) *Agenda for Action*, rings even more true. The United States will not be able to lead an increasingly technological world into the twenty-first century without students and teachers who have developed a profound understanding of

See MATHEMATICALLY PROMISING, 32

A Vision of Science That Can Decrease Perfectionism

BY ROBERT ARTHUR SCHULTZ

It is spring semester. Cindy and Evan are discussing their senior year and the courses they are going to sign up for during registration next week.

"I don't know Evan, physics is a stretch for me, and since I haven't gotten notice about my college applications yet, I don't want to mess with my GPA. I think maybe astronomy; I hear it's an easy A and my dad is really into it. He taught me all I need to know while I was in junior high," Cindy says.

"Yeah, I know what you mean Cindy," replies Evan; "my mom really has a hang-up about me taking the most advanced classes I can. Then, when I get a 96 or something on a test, she asks why I didn't do better. I really want to take shop but I don't think she'll go for it, and I don't want to disappoint her. After all, I'm the first one from our family who's going to graduate from college."

This conversation takes place every year in high schools across

See PERFECTIONISM, 37

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NEWS NOTE

Renzulli on the Web

What is This Thing Called Giftedness and How Do we Develop It? A Twenty-five Year Perspective by Joseph Renzulli.

This article along with six responding critiques appeared in the Fall 1999 (Vol. 23, No. 1) issue of the *Journal for the Education of the Gifted*, the quarterly journal of The Association for the Gifted. Dr. Renzulli's article is now available on the Internet at www.gifted.ucon.edu and will be under "New Articles."

There is a beauty in discovery. There is mathematics in music, a kinship of science and poetry in the description of nature, and exquisite form in a molecule. Attempts to place different disciplines in different camps are revealed as artificial in the face of the unity of knowledge. All literate men are sustained by the philosopher, the historian, the political analyst, the economist, the scientist, the poet, the artisan, and the musician.

—Glenn T. Seaborg, upon being appointed Chancellor of the University of California, Berkeley, 1958

CALENDAR

CAG BOARD MEETINGS

APRIL 7–9, 2000
Fairmont Hotel, San Jose

JUNE 2–4, 1999
Doubletree Hotel, Monterey

Board Meetings are open to the public. If a meeting is scheduled in your area and you wish to attend, please call the CAG office for specific information.

38TH ANNUAL CAG CONFERENCE

MARCH 3–5, 2000
"Century of Reflections—Honoring the Past, Imagining the Future"
Century Plaza Hotel, Los Angeles

NATIONAL & INTERNATIONAL CONFERENCES

FEBRUARY 26–29, 2000
National Association for Gifted Children (NAGC)
Affiliate Conference
Washington, DC
Contact: 202-785-4268 or www.nagc.org

APRIL 5–8, 2000
Council for Exceptional Children
"One World: Building Tomorrow Together"
Vancouver, BC Canada
Contact: 888-232-7733 or www.cec.sped.org

MAY 5–7, 2000
13th Annual Hollingworth Center Conference
"The Many Faces of Highly Gifted Children"
Newton, MA
Contact: 207-843-0459 or www.hollingworth.org

NOVEMBER 1–5, 2000
National Association for Gifted Children (NAGC)
"Crossroads to the Future"
Atlanta, GA
Contact: 202-785-4268 or www.nagc.org

JULY 31–AUGUST 4, 2001
14th Biennial World Conference
World Council for Gifted and Talented Children
"The World of Information: Opportunities and Challenges for the Gifted and Talented"
Barcelona, Spain
Contact: 818-368-7501 or www.worldgifted.org

MARK YOUR CALENDARS

March 3–5, 2000

38th Annual CAG Conference

"Century of Reflections: Honoring the Past, Imagining the Future"

Century Plaza Hotel Los Angeles

The California Association for the Gifted serves its members in many valuable ways:

- Institutes and conferences for educators and families
- Parenting strategies to nurture giftedness
- Advocacy to assure funds for GATE programs
- Publications about differentiated curriculum and contemporary issues affecting gifted students

CAG is a mission-driven, volunteer administered, nonprofit association.

HOW TO REACH CAG

CAG OFFICE
5777 W. Century Boulevard, Suite 1670
Los Angeles, CA 90045
Tel: 310-215-1898 • Fax: 310-215-1832
e-mail: CAGOffice1@aol.com
www.CAGifted.org

LETTERS TO THE EDITOR
Margaret Gosfield
3136 Calle Mariposa, Santa Barbara, CA 93105
Tel: 805-687-9352 • Fax: 805-687-1527
e-mail: gosfield@aol.com

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FROM THE EDITOR

MARGARET GOSFIELD

I must admit that I am one of those who feared math and science through much of high school, and deliberately avoided them whenever possible in college.

I don't recall fear at an earlier age; in fact I enjoyed algebra and did well. But along came geometry and with it one of the traumas of my young life. The village high school I attended was not large enough to support a section of geometry at any one grade level, and advanced classes were generally open to all except freshmen. As luck would have it, I was in the youngest group the year the cycle included geometry, and was member of a class of mostly males, and mostly juniors and seniors. Unfortunately the teacher did not reduce the fear felt by younger students either. The course was taught by the school superintendent (everyone did double duty in the school) who certainly understood the postulates, theorems, and proofs in the text, but was more effective in his administrative duties than in the classroom.

The result was the first "C" grade of my academic career. Walking into the house from the school bus, I can still hear my mother's response when she saw my report card. Needless to say, the experience did not encourage me to explore other rigorous courses; I didn't want to mar my GPA any further!

There are two goals for this issue on math and science: (1) to encourage and support those individuals obviously talented in math and science, and (2) to find ways to encourage other able students who may be intimidated, but who have much to gain through exploration of mathematics and science.

In the lead article, Linda Sheffield points out that gifted math students have traditionally been underserved. Through her work at the University of Northern Kentucky and with the National Council of Teachers of Mathematics, she has been seeking ways to remedy this situation. Her article is a thoughtful presentation of ideas and programs that teachers and districts may wish to adopt.

The second lead article is by Robert Schultz of Texas Tech University who proposes that science be used as a vehicle to reduce the tendency in gifted students to become perfectionists. He suggests that while teaching science, emphasis on making mistakes as a means to successful learning can help gifted students become more comfortable in exploring areas which they might otherwise avoid.

Associate Editor, Richard Boolootian recommends increased rigor in K-12 science classes, pointing out that "cutsie" hands-on science is not sufficient in itself, even though it may be appealing to both teachers and students. Kari Sharif-Freidig makes the case for removing barriers to advanced achievement for mathematically gifted girls.

In an article for parents, Jennifer Beaver explores the recent phenomenon of "the Mozart Effect" and asks if music can improve math skills. In a companion piece, Rebecca Shore contends that Mozart was really listening to Bach in his crib, and that Baroque music is more effective in stimulating the brain than the later classical works of Mozart.

The Hands-On-Curriculum section offers a special space exploration activity by Richard Shope, Coordinator of the Public Outreach Program for the Jet Propulsion Laboratory in Pasadena, while science resource teacher Jean Resler outlines an activity for weighing "Moondust." Also in support of classroom teachers is an article by Associate Editor Debra Johnson, describing how individual schools can augment their science programs by holding "science showers" to gain additional resources.

Finally, we have a delightful article by 12-year-old Kate Pynoos who spent part of her summer reveling in science during a summer learning trip to the Galapagos Islands. It turns out that she's a talented writer as well as a budding scientist.

Two works featured in the book review section will also be part of CAG's annual conference in March. Linda Sheffield's *Developing Mathematically Promising Students*, and Sally Reis' *Work Left Undone: Choices and Compromises of Talented Women* will be available to conference goers. Both authors will be major speakers at the conference and will also be autographing their books. Check your conference program for times and locations; we look forward to seeing you in Century City. ■

Can Music Improve Math Skills?

BY JENNIFER E. BEAVER

A few short years ago, that was the question posed by publications from *Time* to *Psychology Today*. Educators, parents, musicians, and pop psychologists alike suddenly became interested in the Mozart Effect, the concept that listening to Mozart can improve performance. Based on studies at the University of California at Irvine (UCI), the Mozart Effect suggested that listening to and/or playing the music of Mozart could somehow aid in spatial-temporal skills—the sort of intelligence that lets people solve geometry problems, play chess, do jigsaw puzzles, and calculate how to get a basketball through a hoop or a golf ball into a cup.

In 1995, Dr. Gordon Shaw, a physicist at UCI, and Dr. Frances Rauscher, a former UCI psychologist now at the University of Wisconsin, released results of a study involving college students that indicated that listening to Mozart for 10 minutes improved scores on the Stanford-Binet IQ test by an average of nine points. This was followed in 1997 by another study using four groups of preschoolers. Over an eight-month period, each group was exposed to various activities for 10 minutes a day: the first had computer lessons, the second had singing lessons, the third had piano lessons (using the music of Mozart), and the fourth had no lessons. Six months later, tests revealed that students with piano keyboard training performed 34 percent better on spatial-temporal tasks than they had before the training. The other groups showed no improvement.

How is this possible? There are many theories, but the basic premise is this: Music may lay down neural pathways that help with cognitive skills and abstract reasoning.

Not surprisingly, many embraced this research as a mandate to increase musical exposure for children at all socioeconomic levels. A variety of CDs and books (see resources) appeared on the shelves, claiming to do everything from improve performance to promote relaxation and even speed post-surgical recovery.

Belief in the Mozart Effect took a real and practical turn in 1998, when Georgia Governor Zell Miller—a former teacher—proposed that every baby born in the state should leave the hospital with some classical music. Sony Music Entertainment agreed to produce the CDs and cassettes at no charge to taxpayers. After Zell developed a distribution system, the music became available to the approximately 100,000 children born in the state every year. Will we discover that children born in Georgia during this time period are geometry whizzes or chess masters? Only time will tell.

In July 1999, a study challenging the UCI group's findings appeared in *Psychological Sciences*, a publication of the American Psychological Society. Using the same musical selections and conditions of the 1995 study, a team of researchers from Appalachian State University found no indication of a Mozart Effect. According to this group, there is little evidence to support basing intellectual enhancement programs on the Mozart Effect.

Dr. Rauscher, in an interview with a program called ArtsEdge, clarified that the UCI study never claimed to increase intelligence. The Mozart Effect, and the UCI studies that revealed it, merely said that such music could temporarily increase spatial-temporal reasoning.

While scientists continue to debate the existence of a Mozart Effect, it seems likely that playing a Mozart piano sonata for our children will only do more good than harm. Such music may create more math brains and pro golfers—but even if it just increases their appreciation for classical music, that in itself is a tremendous benefit.

Resources

- **www.parenting-baby.com/**
  Parenting Central
  Resources for parents and expectant parents about the intellectual and emotional life of the developing child.
- **www.psychologicalscience.org/**
  The American Psychological Society
  A one-stop source for the latest information about the Society

and the field of psychological science. Founded in 1988, The American Psychological Society (APS), is the nation's leading society dedicated solely to scientific psychology

- **www.menc.org/**
  MENC: The National Association for Music Education
  MENC's mission is to advance music education as a profession and to ensure that every child in America has access to a balanced, sequential, high-quality education that includes music as a core subject of study.
- ***The Mozart Effect: Tapping the Power of Music to Heal the Body, Strengthen the Mind and Unlock the Creative Spirit***
  (1997, New York: Avon Books, ISBN: 038094185, $24.00); by Don Campbell. The author, a musician and founder of the Institute for Music, Health, and Education, believes that certain types of music can improve intellectual and creative development and even help with dyslexia and post-surgery recovery. (see resources)
  Available at Amazon.com and all major booksellers
- CDs compiled by Don Campbell
  The three CDs in his "The Mozart Effect: Music for Children" series:
  Tune Up Your Mind. (1998). ISBN: 189644927, $18.98 (specially selected to improve intelligence and increase IQ).
  Relax, Daydream, and Draw. (1998). ISBN: 1896449743, $18.98 (to inspire creativity and relaxation).
  Mozart in Motion. (1998). ISBN:18964476X (to explore body movement, motion, and motivation).

JENNIFER BEAVER is the Associate Editor for Parent Topics for the *Communicator;* she also runs her own business, J.E.B. Communications.

The Mozart Effect In Action: The S.T.A.R. Program

While it is seductive to believe that music—any music—can improve performance, few schools have instituted mandatory piano lessons to take advantage of The Mozart Effect. There are many obstacles to this approach, time and money being the most obvious. While listening to Mozart—a relatively easy-to-implement strategy—may be helpful, it is the actual keyboarding to Mozart that has produced the most dramatic results. The money for piano teachers and keyboards is in short supply in most districts, especially when the benefits are difficult to prove.

That may change with the availability of the S.T.A.R. (Spatial-Temporal Animation Reasoning) Program, an interactive computer game developed by Dr. Gordon Shaw and Amy B. Graziano and Matthew Peterson, two other members of the UCI faculty. Soon-to-be-available to schools and individuals from the M.I.N.D. (Music Intelligence Neural Development) Institute, a non-profit group developed by this team, the S.T.A.R. Program is used in conjunction with a music instruction program to help students improve their advanced math skills, such as those required for proportional math and fractions. Inner city Los Angeles school children showed improvement in these areas following an experimental program that combined piano-playing basics, the S.T.A.R. Program, and integration of both into the math curriculum.

Using this approach, educators can teach advanced math concepts and evaluate several hundred children a week. Research indicates that children who participate in a music program outperform others in S.T.A.R. testing. For parents and teachers who believe that music does more than entertain, this is a positive step toward integrating music into the educational process. The S.T.A.R. program gives advocates a measurable way to prove results while introducing certain math concepts at a younger age.

Dr. Shaw is quick to point out that implementing a piano-teaching program where none existed before is a huge undertaking. "S.T.A.R. would be particularly appropriate for schools that already have a music enrichment program," he explained. "If you add S.T.A.R. into such a program, children would be getting enrichment in more than just a cultural sense."

Dr. Shaw's recently released book, *Keeping Mozart in Mind*, presents the latest scientific findings of the effects of music on reasoning and learning. It also includes a CD-ROM demo of the S.T.A.R. Program.

Resources

- www.mindinst.org
  This is the web site for the M.I.N.D. Institute, a community based, non-profit, interdisciplinary basic scientific research institute which was formed in 1997, by the team of scientists that did the dramatic and groundbreaking research that used music as a window into higher brain function. A downloadable version of the S.T.A.R. program will soon be available here.
- *Keeping Mozart in Mind*, by Gordon L. Shaw. (1999) $49.95, 400 pp. San Diego: Academic Press. ISBN: 0126392900. 1-800-321-5068.

Much Ado About Mozart

BY REBECCA SHORE

While most folks today generally refer to all music written before 1900 as classical, music history is actually divided into periods or eras based on specific characteristics or qualities. Amadeus Mozart was not listening to Amadeus Mozart as he lay in his crib in 1756. In fact, it was not classical music at all that he was hearing. It was highly complex, mathematically organized baroque counterpoint that he heard in his infancy. This systematically developed music helped to build the mind of the child genius and and stimulated his mental development to such a point that he began playing music at four and composing soon afterward.

Several important characteristics distinguish baroque from classical music. The baroque period is characterized by a much greater emphasis on the organization of the resulting vertical combinations of contrapuntal melodies, in conjunction with major-minor tonalities to produce complex harmonic, rhythmic, and textural structures and expression. It was brain music and appealed to the intellect over the emotions.

The move from this baroque counterpoint to classical music written roughly between 1750 and 1830 was actually a move away from this high level of complexity and toward more simple harmonies.

The changes in the technology of musical instruments themselves had a major impact as well. The primary keyboard instrument of the baroque era was the harpsichord. The pianoforte (piano means soft and forte means loud), came into use in Mozart's day. The pianoforte, now simply called the piano, could play louder or softer music simply by the performer's varying touch. The mechanics of the harpsichord, in contrast, prohibited any dynamic changes from the touch of the performer's fingers. The pianoforte made it possible to produce varied volumes within a piece of music—but, consequently, it accelerated the move away from the intellectually appealing baroque music toward the more emotional appeal of the classical.

Mozart is considered a classical composer. But the music that built the brain of this young genius was not classical, but baroque. The sounds he heard repeatedly, even before birth, were his older sister practicing counterpoint on the harpsichord and his father's violin students fiddling away at the highly structured, systematic baroque sounds of the day. And that music was not repetitive. It represented the ultimate in melodic development in a complex way.

We hear musical sounds the way we do because each note vibrates at a different frequency. For example, the "A" above middle "C" vibrates at 440 cycles per second. The "A" two octaves above "C" vibrates at 880 cycles per second and so on. Simply put, music can be explained mathematically and the relationship between tones is a mathematical one. Exposing infants from birth to age three to the highly complex contrapuntal music of the baroque era can remarkably improve the learning potential, creativity, and resulting intellect of the child. This music enhanced neural activity between brain cells.

Unfortunately, many neurologists and sociologists lump what they refer to as "complex music" into the era of classical music without recognizing the critical differences between the musical eras which affect the child's developmental listening. Through decades of studying gifted children, when musical factors are considered, these factors are repeatedly labeled and reported in a category referred to as classical. Today, we have no way of determining if this was specifically music written in the late 1700s and early 1800s.

The classical music of Mozart is brilliant and should be standard listening curriculum in the primary grades. Listening, however, is developmental. The best bet for babies and toddlers is Johann Sebastian Bach. Johann Sebastian Bach is considered one of other greatest baroque composers. Both Mozart and his father were influenced by his music. His music has grown steadily in stature over the decades. It was even included aboard Voyager 1 and 2 as examples of the best that human culture has to offer.

While there has been much ado about Mozart in the past few years, Bach is definitely tops for building the brains of babies and toddlers. ■

Resource

Bach & Baby tapes and CDs for Playtime, Bedtime, Bathtime, Traveltime

Available at: Border's Bookstores, Lakeshore Learning, ZanyBrainy stores, or through Youngheart Music, an educational publishing company, at www.Younghrt.com or by calling 1-800-444-4287.

DR. REBECCA SHORE is the principal of Los Alamitos High School, an adjunct professor at UCI, the mother of two small children, and a musician. She is also the producer of a series of four CDs and tapes designed to enhance the environment of babies and young children. All four have won Parent's Choice Awards. Proceeds from the recordings benefit the Bach Endowment Fund at the University of Colorado at Boulder.

Cherish (science), venerate her, follow her methods faithfully...and the future of this people will be greater than the past.

—Thomas H. Huxley

The A[illegible] Teaching Science to [illegible]ifted

BY [illegible] BOOLOOTIAN

For the past two hundred years, science courses in the United States have been taught in an academic context. During the last half of this century, there has been a recurring concern about the adequacy of science education. Pressures for a reform of science education have been actively underway since the mid 1960s. There was need for a vigorous change and approach to the teaching of science across the academic spectrum—from elementary to college. Glenn Seaborg, not only a Nobel Laureate in chemistry but a revered teacher, aptly summarized contemporary science curriculums as producing students who are "foreigners in their own culture." What he meant was that students, gifted or not, lack understanding of the impact of science and technology on public policy, human values and the future of our democracy (Hurd, 1996).

Over the years, I have observed changes in style, approach, content, organization, and imagery in biology textbooks that were all attempts to dazzle the reader. These texts are physically heavy but intellectually light with a puzzle of ideas and no coherent focus. Bigger and heavier does not mean better. We need a science curriculum that helps students navigate their way in our new emerging technological world, a world which has been launched by quantum leaps in knowledge in science and technology. This article will argue that "hands-on," cutsie science is not sufficient in itself, engaging as it may be, and that greater rigor is needed in all K-12 science courses and materials.

In The Beginning

The starting point for curricular revamping began with the appearance of Sputnik on October 5, 1957. Soviet Russia not only launched the first orbiting satellite, it propelled the education, science and the legislative communities into action to bring the U.S. back into the lead in science. Physics, chemistry, and biology received the greatest stimulus for reform. The rapid advance of fundamental knowledge left pedagogical materials behind, so what we taught had to catch up with what we knew (Arch, 1998).

Gifted students must be challenged (Ziff, 1999) and informed about the fantastic and explosive growth of science-based technology. Consider, for example, the Human-Genome Project. It is anticipated that we will have a complete map of the genetic code within the next five years. What doors of technology will this open? Consider also, what has been accomplished to date in the field of cloning; not just one species, but many different species have been cloned. Are today's science teachers prepared to provide the rigor and discipline needed by our students to make them more competitive in our technological world?

The teaching of science to gifted students must include content-rich materials, as well as maintaining relevancy to current times. Along with a broad-based approach to teaching science, close contact with day-to-day event-based activities and a strong tie-in to hands-on activities makes for more exciting and meaningful experiences.

"A standards-based science curriculum must contain three years of science and three years of mathematics" (Lederman, 1999). Lederman further adds "that the coherent order begins with 9th grade physics, taught conceptually and exercising only the math of 8th and 9th grade." Currently, biology is taught first, then chemistry, followed by physics. Biology is often considered the easiest course and is therefore taught first. But such thinking is misdirected because biology now focuses on atoms, molecules, and their interactions in living systems.The reverse order beginning with physics can be done at the 7th or 8th grade level with gifted students. "Then, chemistry, building on the knowledge of atomic structure to study molecule formation, then the crowning glory of modern, molecular-based biology." What a grand scheme this can be for our students, providing fundamental knowledge of physics and chemistry before taking a course in modern biology. More than 70 schools around the nation have made this "physics-first" their standard sequence for over a dozen years. Lederman and his associates are much encouraged by the results to date. In fact, students can learn high school sciences successfully at an earlier age than allowed in

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our schools currently; for example, middle school students in the 8th grade can do 10th grade science. This is done in Japan (Coombes & Keeves, 1973) and in many accelerated programs for gifted children. The repetition prevalent in many K-12 schools is unnecessary for gifted students.

Where are We Today?

Most school systems have jumped on the band wagon of student active science, also known as hands-on science; this mode captures the scientific process very well but at a cost.The activities are often innovative and more appealing than traditional lecture format. However, hands-on-science brings students and science together in the laboratory only; the result is a hothouse blossom, a labor of concentrated culturing with a generous contribution of that incredible fertilizer, money! Can these hand-raised beauties flourish on their own in the general curriculum? I believe the answer is no!

The misfortune is that hands-on science (some teachers call it "cutsie science,") sacrifices content for process. It appears exciting, but it is also empty! Science is about things—objects and their relationships—things that must be known before process can be applied to problems of genuine interest. Those things constitute content, and when that content is missing, process becomes simply another mental toy. Furthermore, there are no systematic comparative data on the effectiveness of student active science. Without such data, we can have no confidence that students will complete their academic studies with the breadth and depth of science experiences that will allow them to deal with such problems as ethical issues facing humanity, science and religion and environmental concerns, such as global warming.

An Approach

Hands-on science may be a valid approach, but only within a very narrow intellectual spectrum. Look at the best current textbooks; scan their subject matter content and you quickly get the picture of necessary breadth. This breadth cannot be taught by hands-on science alone. Furthermore, there are other problems with many of the current texts. There are too many side bars along with small graphics and little textual material; this makes for a very busy page, whereas simplicity is elegance.

Traditional lectures should be combined with hands-on activities, field trips, videos, and research to achieve the ultimate in science education as in the photo below. Left, a student observes the interaction of bones in the mechanics of pedaling a bicycle.

As counterrevolutionary as this may be, traditional lecture hall education is still with us after centuries of use. Why? Because it still provides students with direct contact with the teacher, an opportunity to interact with the teacher, and a forum to challenge the teacher on controversial issues. Gifted students need this level of intellectual stimulation. It does not mean that lecture instruction is the only way to practice. It should be combined with hands-on activities, field trips, videos, and research activities to achieve the ultimate in science education. This is not "cutsie science," but when all is pedagogically orchestrated, it can be a learning experience never to be forgotten. What is needed is a balance—employment of a wide range of teaching strategies tied into a scope and sequence matched against the science standards.

Besides the issue of methodologies of teaching, we must face the problem of what gifted children should learn about science, and when they should learn it. Science educators have been struggling with these issues since the 1950s. As a result, reformers in all 50 states have been busy designing new ways to teach science, but without agreement on key factors such as: Should science lessons be taught in a truly interdisciplinary fashion, and when should difficult concepts be introduced? We are fast approaching the 21st Century, and we must create a comprehensive science program for the gifted.

Science Values

Science often moves faster than our ability to understand its implication. The Internet can be a new town square or a new tower of Babel. As

See ART OF TEACHING SCIENCE, 41

Discovering Mathematical Talent

BY RICHARD C. MILLER

Reprinted from ERIC Digest #E482.

Sara, who is 5 years old, listens as her 32-year-old father comments that today is her grandmother's 64th birthday. "Grandma's age is just twice my age," he observes.

Although outwardly Sara does not seem to react to this information, her mind is whirling. A few moments pass, and then the young girl excitedly replies, "You know Dad, you will only be 54 when your age is twice mine!"

Sara has been intrigued by numbers and numerical relationships since she was very small. At first this could be seen in the way she liked to count things and organize groups of objects. She showed a fascination for calendars, telephone numbers, dates, ages, measurements, and almost anything else dealing with numbers. Sara learned and remembered this information quickly and easily, but what was even more amazing was the way she played with and manipulated the information she was learning. She would carefully examine each idea and eagerly search to discover new, interesting, and unusual relationships and patterns. Although Sara has had little formal instruction in mathematics, at the age of 5 she has acquired an incredible amount of mathematical knowledge and is amazingly sophisticated in using this knowledge to discover new ideas and solve problems.

Sara is an example of a young child who is highly talented in the area of mathematics. Like most individuals with this unusual talent, Sara exhibits characteristics and behaviors that are clues to her ability. Some mathematically talented people radiate many or obvious clues, others offer only a few, or subtle ones. Recognizing these clues is often an important first step in discovering an individual's high ability in mathematics. It is difficult to believe, but many people with a high degree of mathematical talent have their talent underestimated or even unrecognized. Their clues have gone unnoticed or ignored, and the true nature of their ability remains unexplored. If Sara's talent in mathematics is to be discovered and appropriately nurtured, it is important that her parents and teachers recognize the clues.

What Should Parents and Teachers Know to Help Them Better Recognize Mathematical Talent?

Mathematical talent refers to an unusually high ability to understand mathematical ideas and to reason mathematically, rather than just a high ability to do arithmetic computations or get top grades in mathematics. When considering

The program should stress mathematical reasoning and develop independent exploratory behavior. This type of program is exemplified by discovery learning, looking for underlying principles, engaging in special projects in mathematics, problem solving, discovering formulas, looking for patterns, and organizing data to find relationships. Above, students look for patterns in fish. Right, a field trip to a blind thrust fault poses real-life application of mathematical formulas.

mathematical talent, many people place too much emphasis on computational skill or high ability in replicating taught mathematical procedures. Unless mathematical talent is correctly perceived, however, important clues can be overlooked and less important clues can be given too much significance.

Some characteristics and behaviors that may yield important clues in discovering high mathematical talent are the following:

1. An unusually keen awareness of and intense curiosity about numeric information
2. An unusual quickness in learning, understanding, and applying mathematical ideas
3. A high ability to think and work abstractly and the ability to see mathematical patterns and relationships
4. An unusual ability to think and work with mathematical problems in flexible, creative ways rather than in a stereotypic fashion
5. An unusual ability to transfer learning to new, untaught mathematical situations.

Terms such as mathematically talented, mathematically gifted, and highly able in mathematics are generally used to refer to students whose mathematics ability places them in the top 2% or 3% of the population. It is important to keep in mind the unusually high degree of talent that is being sought when looking for mathematically talented individuals.

Not all students who achieve the highest test scores or receive the highest grades in mathematics class are necessarily highly talented in mathematics. Many of the mathematics programs in our schools are heavily devoted to the development of computational skills and provide little opportunity for students to demonstrate the complex types of reasoning skills that are characteristic of truly talented students. The tests used and the grades given in such programs usually reflect that structure. Computational accuracy and conformity to taught procedures may be overemphasized, and the reasoning abilities associated with high ability in mathematics may be underemphasized. In this type of environment, test scores and grades of less able students who are good in computation, attentive in class, willing to help, and conscientious about completing all assignments carefully in the prescribed manner will often be as high as the test scores and grades of students who are genuinely talented in mathematics. While high achievement in school certainly can be a clue to high ability in mathematics, additional information is needed. If care is not taken, students who are simply high achievers in mathematics can be mistakenly identified as mathematically talented. It is just as important to avoid such incorrect identification as it is to

See MATHEMATICALLY TALENTED, 43

Science Curriculum Reform Classroom Indicators

Do our classrooms contain the following elements?

Yes	No	
____	____	Curriculum focuses on important concepts (e.g., systems, change, patterns, models).
____	____	Curriculum emphasizes the research process within an integrated framework (e.g., exploring a topic, planning how to study it and carrying out a study, judging results, and reporting).
____	____	Curriculum focuses on substantive content.
____	____	Instruction is inquiry-oriented, using strategies like problem-based learning and higher level questioning.
____	____	Instruction is activity-based, engaging students in the doing aspect of learning.
____	____	Assessment of learning includes performance-based approaches such as use of real-world problems for students to demonstrate understanding and transfer of key ideas and processes.
____	____	Assessment of learning includes a portfolio of student work including individual logs, reports, and other work.
____	____	Students engage in planning and carrying out original research. (Teachers instruct students in experimental design.)
____	____	Students actively discuss real world problems and issues in relationship to societal implications. (Teachers present issues and ask high level questions about them.)
____	____	Students demonstrate thinking processes necessary for doing work in a given discipline; e.g., inference, deductive reasoning, evaluation of arguments. (Teachers ask higher level thinking questions in classroom discussion and activities.)
____	____	Curriculum materials are appropriate for high ability learners in that they reinforce Items 1-10 above.
____	____	Curriculum materials promote student engagement in learning.
____	____	Classroom instruction incorporates appropriate technology as a tool in learning.
____	____	Classroom instruction attends to individual differences in rate of learning.

Excerpted from: ERIC Digest E546, Planning Science Programs for High Ability Learners by Joyce VanTassel-Baska. (1998). www.cec.sped.org/digests.

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Mathematically Gifted Girls

Removing the Barriers to Advanced Achievement

BY KARI SHARIF-FREIDIG

The greatest problems facing mathematically talented girls and young women are ones that are both reversible and preventable. As educators, parents, and societal members, we do have the ability to remove the obstacles that stand in the way of advanced achievement for mathematically precocious females. Declining self-esteem, acceptance of body image, gender-biased tests, childhood toys, classroom discourse, cultural and socialization issues all contribute to the serious problem of female underachievement in mathematics and related fields. A closer look at the issues is a first step in removing such obstacles.

For girls, the middle school years can be a time of significant decline in self-esteem and academic achievement. Studies have shown that many girls seem to think well of themselves at the elementary school level, and that mathematics achievement at this level is equal to that of boys'. However, girls suffer a severe decline in self-confidence and a marked decrease in mathematics achievement during the middle school years (AAUW, 1991; Backes, 1994; Callahan & Clements, 1984; Dossey, Mulis, Lindquist, & Chambers, 1988). The relationship between a decline in self-concept and a decline in achievement indicates that identifying the special needs of mathematically gifted girls at school and at home should be a high priority for parents and teachers.

This decline can most often be attributed to strong stereotypical factors that exist in our society, one of the most damaging of which is that boys have "innate" or natural mathematical abilities that girls do not possess. This single factor alone has powerful and detrimental ramifications for mathematically talented girls and young women. As a result, achievement expectations for females are usually lower than those for males, and parents and teachers often do not encourage girls to pursue math or science related careers. Indeed, it is most unfortunate that as a society, we traditionally think of doctors, mathematicians, engineers, and scientists as occupations for men.

The fact that girls tend to score lower than males on standardized math tests can only help to perpetuate the belief that males are superior in mathematics, and further damage the self-concept that females hold of themselves. Upon further examination of gender differences in learning styles,

"...it has become evident to me that females tend to approach problem solving from a different perspective than their male counterparts." Above, mathematically talented girls work together on a science experiment. Left, a young girl conducts a water pressure experiment in the science lab. Right, a discussion with a female science teacher provides a role model and mentor.

gender-biased tests may be at the root of this discrepancy.

As a middle school math and science teacher, it has become evident to me that females tend to approach problem solving from a different perspective then their male counterparts. I have observed that my gifted female mathematics students are very detail oriented as they solve problems; they learn best using collaborative thinking and discussion. They question often, and feel they must understand all the variables; even variables on the periphery of the problem must be explored and thoroughly discussed. "There is no leaf left unturned." Their solutions are often highly creative and reflect meticulous and sophisticated thought processes. As a result, these talented girls are at a definite disadvantage when given time restraints on standardized tests. Time restraints on tests are undeniable barriers, and have particularly damaging implications for girls who demonstrate gifts and talents in the study of mathematics. Traditional college entrance exams are timed; low test scores on entrance exams may deny these young, talented women the opportunity for admission to competitive colleges.

Socialization issues are also responsible for a decline in female self-esteem and the resulting decline in academic achievement. The arrangement of many mathematics classrooms are structured to foster non-collaborative thinking which encourages actions such as independence, dominance and assertiveness—the qualities in which males have been trained to excel in our society. In these classroom situations, many girls are made to feel uncomfortable and excluded. The importance that women place on mutual support, building collaborative knowledge, and applying it in a practical way is devalued in comparison to the importance of individual expertise and the male inclination to assertively question, answer and debate abstract mathematical concepts.

Parents can unknowingly contribute to the sex-role socialization problem by their attitudes and choices about early childhood toys, clothing, and activities that their children are exposed to. For example, action toys for boys often teach core mathematical concepts such as velocity, angles and three-dimensional configurations, while traditional toys for girls do not. Additionally, gender stereotypes in television, movies, children's books, and the toy and fashion industries pose obvious challenges to healthy psychological development in girls. Children learn first from their parents; parental perspective and awareness of these issues can have a deep and lasting effect on the lives of their daughters. In our society, gifted females are particularly vulnerable as they develop concepts of self-efficacy in relation to their gifts and talents.

See GIFTED GIRLS, 46

Publication Available from the National Research Center on the Gifted and Talented

Constructing a Secure Mathematics Pipeline for Minority Students

By William A. Hawkins

American myths about mathematics which emphasize innate ability rather than hard work reinforce racial and gender stereotypes about who can do mathematics. The author gives several examples of prominent mathematicians and physicists whose lives contradict the common conception that all prominent contributors to the progress of mathematics and science were geniuses whose talent was apparent virtually from birth.

International comparisons show that all American students lag behind their foreign counterparts. Details of these comparisons and how they have influenced reform in mathematics education are considered. Focusing on minority students, barriers to achievement in mathematics are discussed as well as statistics on minority underrepresentation.

After a description of efforts of the Mathematical Association of America to increase the representation and participation of minorities in mathematics-based fields, the report closes with suggestions for teachers of mathematics at the precollege and collegiate level.

Reference

Hawkins, W. A. (1995). *Constructing a secure mathematics pipeline for minority students* (RBDM 9504). Storrs, CT: The National Research Center on the Gifted and Talented, University of Connecticut.

Guidelines

1. Mathematics is no different from any other human endeavor. Hard work is the key to long lasting accomplishment.

2. Familiarize yourself with the National Council of Teachers of Mathematics (NCTM) Standards so your students can take advantage of the tremendous changes taking place in the K-12 mathematics curriculum.

3. Access multicultural materials detailing the mathematical accomplishments of non-Western societies.

4. Encourage mathematical talent among minority middle and high school students through mentorships and advanced intervention programs.

Order No. 9504, $5.00. www.gifted.uconn.edu/products.860-486-4676.

KATE PYNOOS with Roz Cameron, laboratory manager for the Darwin Research Station.

Summer Science Program: Fun-filled Learning

BY KATE PYNOOS

On August 11, 1999, a group of students from the Mirman School Summer Science program stepped onto Santa Cruz Island in the Galapagos Archipelago to visit the Charles Darwin Research Station and giant tortoises. As I was to learn on the way home, that was the very day that the Kansas Board of Education voted to omit evolution from its standard state science curriculum, with evolution no longer being taught as a fundamental theory of biology. It was ironic that we were at the Darwin center to learn about evolution and natural selection on this very day. We could have been back in the 19th Century.

I had been eager to go to the Galapagos Islands. My sixth grade science teacher had a strong interest in the Galapagos Islands and made them sound so intriguing. So when I heard about this trip, I jumped at the chance to go. Reading about the voyage of the Beagle beforehand, I could hardly wait to explore the very islands Charles Darwin described as "where we are brought near to the great fact, 'the mystery of mysteries,' the first appearance of new beings on earth."

After a long trip from Los Angeles to Houston, to Panama City, to Guayaquil, and then to San Cristobal Island, we finally boarded the cruise ship Corinthian, and started our adventure. Lugging our duffel bags full of sunscreen, bug repellent, hats, sunglasses, wet suits, flippers, goggles, snorkels, cameras, lots of film, journals and a few clothes, we were all happy to get to our cabins and then set off to see the animals of the Galapagos. We visited the southern islands, including Española, Floreana, and Santa Cruz.

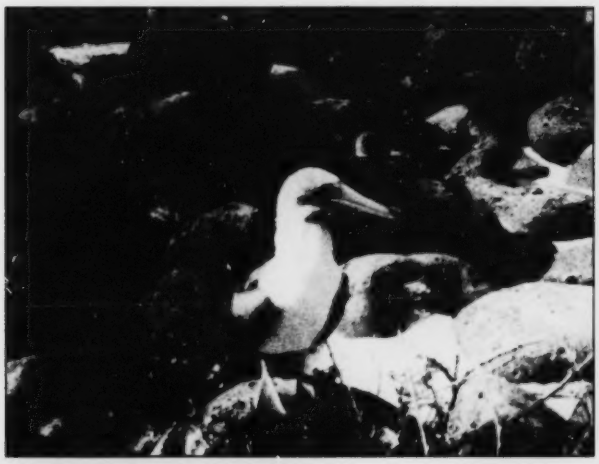
After dinner every night, one of the naturalists on board would give a lecture about what we would be seeing the next day. While we were sleeping, we traveled to the next island. Each morning we had to get up early to embark by dingy to the shore. Naturally I did not really expect to go to these "enchanted islands" and find the answer to how all of life began, but I did learn how to observe animals and start to understand their behaviors and what Darwin meant about natural selection.

Our first encounters were with sea lions leisurely basking in the sun and occupying the steps we needed to climb to get onto Isla Lobos. When we got a little too close, the bull seal wriggled towards us, barking to protect his harem and pups. We learned that, although the animals on the islands were not afraid of humans, they are

protective of their offspring. That day I also had my first sighting of what became my favorite bird, the yellow warbler.

It was mating season in the Archipelago. When we were on Espanola and Floreana we watched the mating dance of the blue-footed booby and of the albatross. The blue-footed boobies have the most unusual webbed feet. They are truly blue! When they do their mating dance, they pick up one foot, then the other, showing them off in a slow-motion waddle. Then they skypoint with their wings back and their long beaks in the air. They looked awfully silly to me, but I could see how they earned their name from the Spanish word for clown, *bobos*. The albatross are very different. They sit in the beginning and like a staged sword fight, they whack their beaks against each other. One gets up and then sits down. Then the other does the same. Then, they start all over again. Each species seemed to have its special mating dance. It was explained to us that the blue-footed boobies are looking for another booby with the bluest feet. The albatross appear to be showing off their powerful beaks. It was easy to understand that natural selection does not just mean a battle for survival over food, but a competition over who will be a parent.

One of the most amazing things I remember about the trip was the extraordinary vivid colors. At home we see vivid colors every day like bright red cars, purple hair, blue houses and green traffic lights. However, the colors in the Galapagos are part of nature: the red, orange, and yellow of the Sally Lightfoot crabs, the bright blue of boobies' feet, the pink of the water where the flamingos feed, the yellow of the warbler, the bright red chest of the frigate bird, the red backs of the marine iguanas, and the multicolored tropical fish when we were snorkeling.



Left, a blue-footed booby whose name originates from the Spanish word for clown, *bobos*. "The blue-footed boobies have the most unusual webbed feet. They are truly blue!" Below, students gather around a sea lion pup who shows no fear of humans.

Of course, the trip was not all science or day trips. It was also freedom from being with our parents, basking on the sun deck like sea lions, and learning to play Hearts with teachers on board. Above all, it was just plain fun to be with a group of kids who shared the same interest in science, adventure and independence. A month after our return, we had a great reunion barbecue party with a chance to see each other again, share photos and stories, and get in another good game of Hearts. We're also glad that our school includes the study of evolution as part of its science curriculum.

KATE PYNOOS, a 12-year-old student at the Harvard-Westlake School in Los Angeles, participated in the annual summer science program led by Dr. Richard Boolootian.

17

BOOK REVIEWS

MAGIC TREES OF THE MIND
How to Nurture Your Child's Intelligence, Creativity, and Healthy Emotions From Birth Through Adolescence
By Marian Diamond & Janet Hopson

(1998) E.P. Dutton, hardcover, $26.95, 464 pp.
ISBN: 0525943080
(1999) Penguin USA, paperback, $13.95, 480 pp.
ISBN: 0452278309

REVIEWED BY BARBARA CLARK

How does a child's mind grow? Is our capacity for learning and creativity limited by our genetic makeup or can the brain respond to stimulation? Recently, scientists and researchers have begun to connect events in the child's developing brain with specific environmental influences and have found that actions, sensations, and memories powerfully shape both function and anatomy. The evidence shows that our ability to acquire new knowledge is far greater than once believed and has tremendous implications for the ways we choose to raise and educate our children—perhaps from the time of conception." So begins the adventure that is this book, a report of a larger adventure into an exploration of what is now known about the human brain and its ability to grow, to learn, and to actualize its genetic potential. This is a book for parents, for educators, for researchers, and for those who just want to better understand how their environment affects their own thinking, feeling, and becoming the unique person they are.

Dr. Marian Diamond has long been the preeminent scientist/brain researcher/educator of our time. With passion Dr. Diamond has, for over 40 years, combined her intense interest in the study of the brain with her equally devoted commitment to the education of children. This rare combination of dedicated laboratory scientist and innovative classroom teacher has allowed those involved in the care and guidance of today's children direct access to a body of information that is both awesome in its possibilities and challenging in its implications. The impact of experience on the function and even the very structure of the brain is the fascinating issue that is explored in *Magic Trees of the Mind*.

Experience in this book is seen as consisting of both the stimulation provided by parents, teachers, and peers, as well as the negative effects of boredom, deprivation, and stress. The reader is taken through the early periods of discovery when the question, "Does the environment literally change the structure and function of the brain?" receives its first exciting affirmative confirmation through to the enrichment work with children that was to prove equally exciting in the years to follow. The resulting suggestions for raising creative, intelligent children are clearly presented in useable detail making this a how-to book that can be used by every parent, teacher, and interested caregiver.

Aiding the telling of this magnificent tale is the writing of Janet Hopson, a science journalist who has authored six books, contributed to *Science News* and *Outsider* magazines as an editor and columnist, and has written for national publications such as the *New York Times*, *Smithsonian*, *Newsweek*, and *Cosmopolitan*. Ms. Hopson extends the work from the Diamond lab at UC Berkeley to include research done in labs across the country and beyond. She helped conduct a survey with 300 parents whose ideas bring practical details of how the brain research can be used as the basis for enrichment in the home and at school. Resources, anecdotes, reader-friendly discussions of scientific theories and laboratory data are but some of the contributions Ms. Hopson makes to this rich and highly readable book.

This book comes at a most opportune time in today's "bandwagon" climate for brain-based learning. When so many books purporting to give advice and models that claim to be brain-based flood the market, few have the credentials that can be found between these covers. Parents and educators must be wary to not oversimplify such a complicated field of study, and yet the urge to take advantage of such exciting findings is seductive. Articles appear daily to warn of the too extravagant but fraudulent claims that are made by enthusiastic but unqualified writers. Here in this book by Diamond and Hopson is a body of work that can serve as the standard for others; a guide to authenticity and integrity. The reader is now on sure ground.

The authors have three intentions, (1) to bring to the reader all of the current brain research that focuses on enrichment and brain development; (2) to clearly delineate the similarities between the neurons and brain structure of animals and humans to allow the reader to make accurate and realistic inferences for enriching human growth and development; and (3) to draw from Dr. Diamond's experiences as a parent, a brain researcher, Director of the Lawrence Hall of Science (a children's discovery center on the campus of UC Berkeley); and gifted woman to create a view of how and why to enrich our children. They meet their goals in exemplary fashion and present to their readers a delightful, informative, fascinating book that is at once a chronology of arguably one of the most important scientific discoveries of our century

and a guide to improving the lives of the children of our planet. You could hardly ask for more in such an interesting, joyfilled, reading adventure. ■

BARBARA CLARK, Ed.D. is Professor of Education at California State University, Los Angeles, president of the World Council for Gifted and Talented Children, and author of *Growing Up Gifted*.

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A scientist in his laboratory is not a mere technician; he is also a child confronting natural phenomena that impress him as though they were fairy tales.

—Marie Curie

REAL LIFE MATH MYSTERIES;
A Kid's Answer to the Question, "What Will We Ever Use This For?"
By Mary Ford Washington
(1995)
Prufrock Press
paperback, $19.95, 104 pp.
ISBN: 1-882664-14-0
800-998-2208
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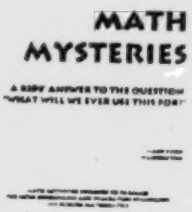
REVIEWED BY JOANNE THOMPSON



Mary Ford Washington journeys back to her hometown of Marshfield, Wisconsin, population 20,000 to create *Real Life Mysteries*, a series of interviews with a variety of community workers about their careers and how math applies to their daily lives. Washington and her "employees" have created challenging math problems that are not only practical, but cover all of the strands on the National Council of Teachers of Mathematics (NCTM) standards.

The book is divided into 28 sections, one for each community worker. The people represent a wide scope of work options, from nurse, pilot, farmer, to recycler. The table of contents lists the job title, name of business, math skill focus, and problem strategy emphasized. Examples of math skills range from calculating interest at the bank, to determining the number of cubic yards of concrete needed by the contractor, to creating the most efficient schedule for car repairs in a day.

The charm of the book for this reviewer is its personalization—the people are real. No names have been changed and their photographs and signatures appear on the page. Their math testimonials are honest, from "I flunked algebra" (by a CPA!) to "I didn't start out with a love of math" (from a female veterinarian). All people in this book are positive role models, and emphasize how they have grown to appreciate the value of math in their lives. This book is interesting both for the career profiles of the employees and the practical math problems presented.

This is a stimulating supplementary text for the classroom teacher wishing to infuse a real world application into math lessons. Also practical for the teacher is the appendix, containing answer keys and extensive explanations for each lesson.

This book is most relevant to the math skills and interest levels of middle to high schoolers. A teacher could use this book with the entire class, a small group, or with an enrichment group. A parent could easily use this book with a child in need of a challenge. This enjoyable text will be of special interest to the student who moans, "When will I ever have to use this math?" ■

JOANNE THOMPSON is a 5th grade teacher and GATE Coordinator at Peabody Charter School, Santa Barbara, CA 93105.

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WORK LEFT UNDONE
Choices and Compromises of Talented Women
By Sally Morgan Reis
(1998)
Creative Learning Press
paperback, $19.00, 442 pp.
ISBN: 0-93638-676-2
www.creativelearningpress.com

REVIEWED BY SANDRA KAPLAN

There are many perspectives one can use to review a new publication. Some reviewers discuss the newly released book by juxtaposing it against the shelves of books representing the same genre. Some reviewers judge the new publication independent of any other similar publication. Some reviewers discuss the relevance of the topic for the time and place, and other reviewers become absorbed in the written style of the material. I have decided to discuss the importance and contribution of *Work Left Undone* by Sally Morgan Reis from the perspective of the author as I know her, and to use this perspective as the basis of underscoring the timeliness and value of the book to educators, parents, and friends who teach, interact with, and/or nurture gifted girls.

This book is a significant compilation of issues, research, and suggestions for educating the gifted girl at home or at school. Its most meaningful contributions are the insights of the author who lives what she writes as an educator, friend, and parent of gifted girls. The author's personal and professional relationships to the material she is writing about enhances both its authenticity and readability. These factors make the book a meaningful resource to the reader on both academic and psychological levels. Academically, the publication facilitates the educator of the gifted in answering these contemporary and constant questions about gifted females:

- What empirical evidence augments and supports the concerns about under motivated and underachieving gifted girls?
- How can a gifted program support the needs of gifted girls while maintaining concern for gender equity and the needs of gifted boys?
- What strategies facilitate the awareness of a gifted girl to assume responsibility for the development of her own abilities?

Psychologically, the publication stimulates the reader toward an introspective analysis of how the parent or educator is potentially facilitating or deterring the external and/or internal factors that could make a difference in the educational and personal lives of gifted females.

I am always amazed at Sally's ability to carve out time to attend to the needs and interests of others. Whether these needs are professional or personal, she is recognized by peers and family as one who will listen to and mentor females in their quest for academic or personal success. In the chapter titled, "Conflicts About Accomplishments," Sally elaborates on the need for our society to be willing to devote time and resources to nurture the talents of women. A subtle part of the mentoring process discussed in the book is located in the last chapter titled, "Recommendations." According to the gifted women she studied, Reis believes that the young girls who might make a difference in society are those who learn how to speak out—to challenge authority—in order to assume their roles as producers of ideas and products. It is in the development of nurturing relationships that gifted girls learn to exercise the skill of speaking out so that they can transfer this skill to other times and places. There are many of us who have learned this skill from our relationships with Sally, the author.

Reis has consistently maintained a reverence for age and the conventional wisdom it conveys. The chapter titled, "Older Talented Women Who Achieved Eminence," is particularly thought provoking. Reis studied older women who achieved eminence later in life and made several important findings. One remarkable finding is that all the women seemed to agree that it was necessary for young gifted females to "make peace" with the decisions that are necessary for them when they are younger, in order to develop and realize their potential later. The reader can translate this finding into affective and cognitive curricular needs of gifted young students attending our schools.

I was present when Sally interviewed a renowned older educator of the gifted. She carefully probed the concept that the contributions and accomplishments of this educator were not gender specific. Then she gently inquired how as a female, this woman had gained such recognition and prominence as an educator. "Oh," said the woman, "you are interested in the process of achievement as well as its product. Now that's another story." The stories of the success of older women provide a retrospective analysis to outline proactive strategies to assist in the development of gifted girls.

The chapter titled, "Recommendations," and the reference section at the back of the book titled "Curricular Materials, Programs, and Resources," includes an exhaustive discussion and delineation of the many and varied curricular and in-

classroom modifications and materials available; these can be used by educators and parents to make a difference in educating gifted girls to do the work they need to do, without feeling that they are leaving work undone.

This book makes a significant contribution to the subject of educating gifted girls. In addition, it should be noted that as a gifted female, Sally Reis is a ready example to other women wishing to fulfill their potential without leaving their chosen personal and professional work undone. ■

SANDRA KAPLAN, Ed.D. is Clinical Professor at the University of Southern California. She is the immediate past president of the National Association for Gifted Children, and the chair of Special Projects for the California Association for the Gifted.

Sally Reis will be a featured speaker at the March CAG conference where she will speak on the topic of "The Female Gifted," and will also autograph copies of her book.

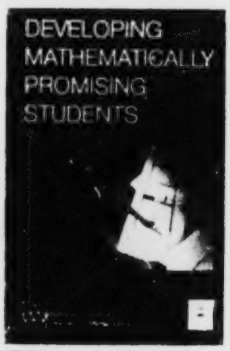
DEVELOPING MATHEMATICALLY PROMISING STUDENTS
Edited by Linda Jensen Sheffield
(1999)
National Council of Teachers of Mathematics
paperback, $37.50, 316 pp.
ISBN: 0-87353-470-0
www.nctm.org/catalog

REVIEWED BY KATHLEEN PATTERSON

Developing Mathematically Promising Students is a fascinating collection of essays by several different authors. In an easy to read format, this book continues our nation's ongoing discussion about math education for students who show promise or potential in math. It is divided into four sections that take the reader from historical perspectives, through such issues as identification, program models, and gender equity as they relate to children gifted in mathematics.

The first section of Sheffield's book details the history of the measurement of intelligence as well as our ambivalence toward it. As a country founded on the concept of equality, we are torn between equal opportunity for all and individual rights. The authors make the case that we need to get beyond this issue and appropriately serve our more able students while attempting to include as many students as possible in the mathematically promising category.

Section two discusses the issue of creating a culture that appreciates and nurtures student talent in math. Of special interest is the essay on the "Open Approach" to math education that is used in Japan. Teachers in Japan have modified their math instruction so that students may choose their own way to do problems (the process is open ended), may find varied answers (the end product is open), or may change the problem (the problem formulation is open). This methodology can be used with any age student and creates the opportunity for individuals to differentiate based on interest and ability.



Section three brings in issues such as gender equity, parent partnership, competitions, and international perspectives. The last essay in this section describes promising programs in eight countries. The contrasts between attitudes and approaches are quite interesting.

The fourth section demonstrates the critical need to provide our students with a world class math education by presentation of research and case studies of students and programs that support the mathematically gifted student. Teachers of mathematics may glean many creative ideas for their own classrooms from these essays.

Sheffield also includes *The National Council of Teachers of Mathematics Task Force Report*. It states that mathematical promise is a function of ability, motivation, belief, and experience or opportunity. Many, if not most adults in our country, do not believe they have the ability to do math, even fear it, and so avoid opportunities to learn and enjoy it. Children look to these adults and acquire the same beliefs. As teachers and parents we must pass on to our children a culture that recognizes, nurtures, and enjoys mathematical ability. Only by so empowering our children can we as a country hope to become world class. ■

KATHLEEN PATTERSON is the Rocklin Unified School District GATE Coordinator and is an Adjunct Faculty member in the Los Rios Community College District. She is also the CAG Parent Representative for the Capitol Region.

This book will be available at the CAG conference in March where editor Linda Sheffield will be a featured speaker.

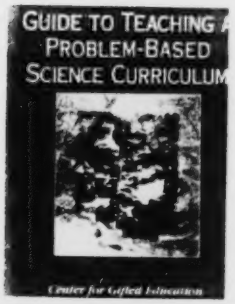
There are no such things as applied sciences, only application of science.

—Louis Pasteur

BEST COPY AVAILABLE

GUIDE TO TEACHING A PROBLEM-BASED SCIENCE CURRICULUM
and
WHAT A FIND!
By the Center for Gifted Education at the College of William & Mary
Joyce VanTassel-Baska, Editor
(1997) Kendall/Hunt Publishing Co.
paperback, $32.95 & $28.95; 117 pp & 202 pp
ISBN: 0-7872-3328-5, ISBN: 0-7872-3815-5

REVIEWED BY KIMBERLY SHERIFF BROWN



Just as Ralph Waldo Emerson so succinctly stated, "Men love to wonder and that is the seed of science," the curriculum presented in this guidebook reaches beyond an inquiry based "hands-on" approach to a meaningful and relevant real world model. This problem-based model allows students to engage in scientific thought, help them to understand that "science is not a dead pile of facts in a textbook, but rather a living, dynamic, challenging, and exciting process." The guide book and supplemental units make an important distinction between experimental design and simply "hands-on" experiments by placing an emphasis in not only engaging students in the experimental process, but also in empowering them to design the experiments themselves.

Problem-based science curriculum integrates scientific process, content, and the concept of systems through the study of real-world problems. Through this approach, students learn how science "systems" interact with the social, political, and economic systems of the real world. They have defined "system' as a "collection of things and processes that interact with each other and together constitute a meaningful whole." The rationale behind this particular concept is that the understanding of one system will help with the understanding of others. "More generally, the study of certain scientific systems will deepen a child's understanding of the world around him. Every child should have some understanding of the ecosystem of which he is an element and the solar system in which he resides."

The William and Mary units were developed for high ability students with a constructivist approach emphasizing features such as a learner-centered design, the role of the teacher as a coach, and authentic assessment. The guidebook successfully addresses issues such as curriculum frameworks, implementation, support and resources. Teachers will find this to be an invaluable tool in optimizing higher level thinking for their gifted students. The lessons build on the depth and complexity fundamental for these children as stated in the following: "While such a core curriculum emphasis is essential for all learners, differentiating for the high ability learner requires responding to the scientific interests and behaviors displayed by these learners. These behaviors include early curiosity and understanding about the world of science; ability to master the tools of science by demonstrating the activities, beliefs, and characteristics of scientists; ability to reason analytically, deductively, inductively with more complex material; and the energy and persistence to solve real problems of science."

While the guidebook serves as an overview to a problem-based science curriculum, seven specific unit books provide 30 hours each of activities related to a particular real world issue and scientific concept. They are as follows:

- *Dust Bowl* (grades 1-3) Students study ecosystems as they resolve the problem of trying to build a model ecosystem as apprentice scientists.
- *What a Find* (grades 2-4) The field of archaeology is explored as students play the role of junior archaeologists at a research museum. This particular unit was reviewed and found to be very effective. The unit includes detailed lesson plans, parent letters, glossary of terms, assessment tools, and supplemental references. Activities include investigating soils, taphonomy experiments, recycling exploration, and a simulation of an archaeological dig with a sub-problem in which a new school's construction is halted due to the discovery of historic artifacts.
- *Acid, Acid Everywhere* (grades 4-6) Acid spills are investigated on a local highway, illustrating chemical reactions, ecosystems and transportation.
- *Electricity City* (grades 4-6) Here the goal is to master the concept of "systems" in the context of a city's electrical system.
- *Chesapeake Bay* (grades 6-8) This unit leads students into an interdisciplinary inquiry about several individual systems and interactions involved in the pollution of Chesapeake Bay.
- *Hot Rods* (grades 6-8) Students make recommendations about the use of the nuclear power plant in their fictitious town.
- *No Quick Fix* (grades 6-8) Concepts of cell biology are understood as students take on the role of physicians resolving the problems of the immune system to the human social systems of health care.

The difference between these units and other supplemental science activity resource books is the underlying notion emphasized that while it is important for students to learn how to conduct an experiment, it is far more relevant for them to understand why scientists do experiments in the first place. In these units, the experiment is not conducted for the teacher, the science fair, or simply for a grade. Rather, it becomes a necessary process by which to solve a real world problem. ■

KIMBERLY SHERIFF BROWN teaches sixth grade in a self-contained classroom of gifted students at Washington Elementary School in Santa Barbara, CA and is a Senior Fellow with the South Coast Science Project.

THE INTERNET AND INSTRUCTION: ACTIVITIES AND IDEAS
By Ann E. Barron & Karen S. Ivers
(1998)
Libraries Unlimited
(Teacher Ideas Press)
paperback, 2nd ed. $28.50
ISBN: 1563086
800-237-6124, www.lu.com/tip

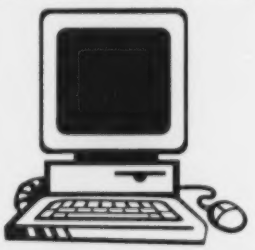
REVIEWED BY PATRICIA ROBERTSON

This very interesting and useful book tackles the daunting task of helping teachers use the Internet effectively in their classrooms. The authors have taken the entire process step-by-step. Even a novice user can begin at the beginning and move forward at a comfortable pace. More experienced users will appreciate the wealth of resources cited by the authors. This book can be successfully used at all grade levels and in diverse subject areas.

An introductory section discusses the benefits that derive from effective use of the Internet in instruction. "Getting Started with the Internet," the title of the first chapter, provides the reader with a wealth of information on getting connected including a description of types of available connections. Once connected, the user is walked through the mysteries of e-mail, listservs, and the World Wide Web.

The rest of the book focuses on using the Internet in the classroom. The authors discuss ways to tap into the interactive nature of the Internet. Teachers will explore resources that allow students to communicate with subject matter experts, mentors, and other students. The authors also discuss research strategies, including ideas that go beyond the standard research project. Teachers will find information about implementation techniques, acceptable use policies, Internet filtering, and classroom management ideas. Readers will learn how to find partners for Internet-based collaborative projects.

The last two-thirds of the book provides subject specific ideas and resources to help teachers integrate the technology into almost any subject area. Among the subject areas included are science, math, language arts, social studies, and fine arts. Using science as an example, the authors have further divided the chapter into resources for astronomy, bugs and worms, environmental science, geology and paleontology, health, meteorology, and other animals. Within each subset, several websites are highlighted and others are briefly described. At the end of the chapter, readers find sources for e-mails exchanges, and online magazines and newsletters to help



teachers and students expand their knowledge about each subject. Several lesson plans are also included at the end of each chapter.

Throughout the book, the authors use clear, nontechnical language. The information is systemically organized. Topics are thoroughly covered and include illustrations and charts to help clarify the information. Many of the activities presented also include a list of "Information Skills" that students develop as they complete the activities. A variety of blackline masters help teachers get started quickly. The book includes two indices – a general index and an index for the websites discussed in the book. The latter is particularly useful in locating an appropriate resource for classroom use.

This book can be used effectively by several different segments of the educational community. A teacher who wants to use the Internet to enhance classroom instruction will find ample information and resources to make the process relatively painless. A technology coordinator who needs information on implementing and supporting effective curricular use of the Internet will find enough information to be a very effective resource for the staff. A professional development trainer who needs a well developed introductory course will be able to use this book as the basis for a whole series of training sessions. Administrators will find this book a useful reference and sourcebook for helping teachers integrate the Internet in their daily classrooms activities.

One of the great strengths of this book is the wealth of resources the authors include. Websites tend to come and go without much notice. There are enough resources provided so that even if one source vanishes, there are multiple replacement options available. The breadth of resources also provides many options for teachers who want to differentiate instruction to better meet the needs of students with different ability levels.

This is a book that encourages teachers to use the resources of the Internet as an integral part of instruction. The authors have met their objectives in providing a book that really does live up to its title. It should stand the test of time even in a period when the Internet and particularly the World Wide Web are expanding at an astounding rate. ■

PATRICIA ROBERTSON is recently retired from the San Jose Unified School District. During her career she was successful as a teacher, a district administrator for technology, and a middle school administrator. She has recently published a book dealing with the subject of collaborative learning supported by the Internet.

The Science Definition Team

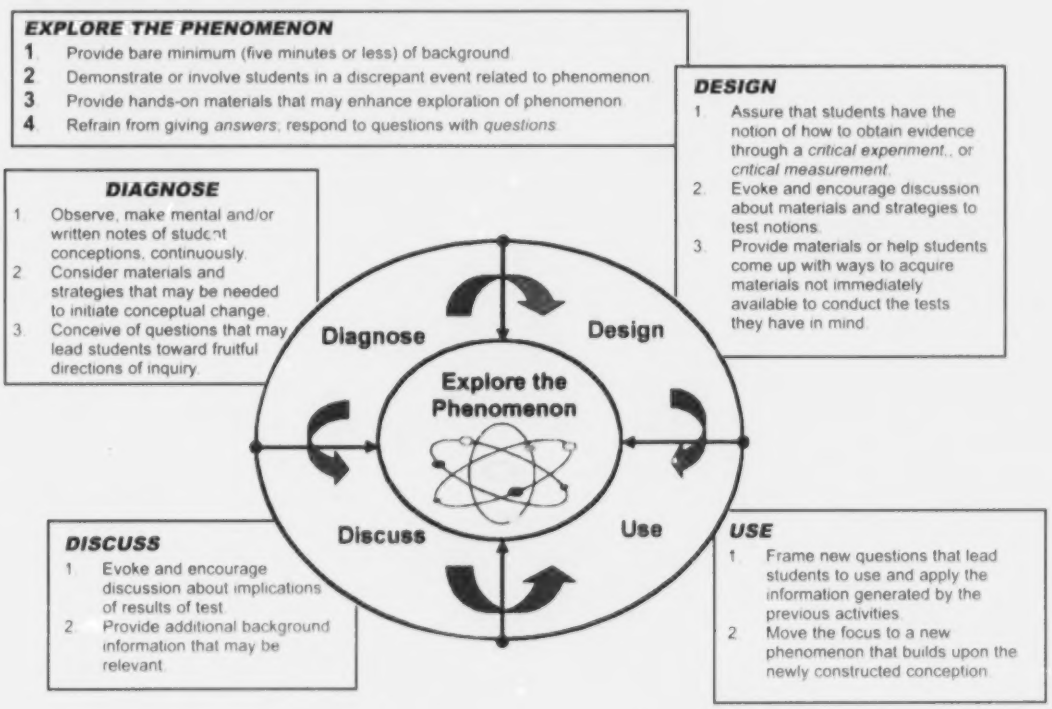
A Space Science Education Outreach Activity for Students Grades 5-12

BY RICHARD SHOPE

Teaching for Conceptual Change: The ED3U Model (ED3U = Explore + Diagnose + Design + Discuss + Use)

This activity is designed to fit within the Teaching for Conceptual Change Model. This teaching model builds upon a learning cycle framework to assure that conceptual change issues are truly addressed at the practical level, in the classroom, in the school laboratory, and in informal learning environments. The idea in this case is to explore prior conceptions about how scientists really think and work.

What images do students have of scientists at work? Is the notion of scientists working in teams familiar or startling? Students may have a fairly clear understanding of how teams work in the venue of athletics—individual excellence played out in the context of working together toward a common goal. How does a team of scientists work? The main objective of this activity is to give students an experiential taste of science teamwork!


EXPLORE THE PHENOMENON
1 Provide bare minimum (five minutes or less) of background.
2 Demonstrate or involve students in a discrepant event related to phenomenon.
3 Provide hands-on materials that may enhance exploration of phenomenon.
4 Refrain from giving *answers*; respond to questions with *questions*.
DESIGN
1. Assure that students have the notion of how to obtain evidence through a *critical experiment*., or *critical measurement*.
2. Evoke and encourage discussion about materials and strategies to test notions.
3. Provide materials or help students come up with ways to acquire materials not immediately available to conduct the tests they have in mind.
DIAGNOSE
1. Observe, make mental and/or written notes of student conceptions, continuously.
2. Consider materials and strategies that may be needed to initiate conceptual change.
3. Conceive of questions that may lead students toward fruitful directions of inquiry.
Diagnose
Design
Explore the Phenomenon
Discuss
Use
DISCUSS
1. Evoke and encourage discussion about implications of results of test.
2. Provide additional background information that may be relevant.
USE
1. Frame new questions that lead students to use and apply the information generated by the previous activities.
2. Move the focus to a new phenomenon that builds upon the newly constructed conception.

ROLE OF TEACHER: Be a facilitator to get things rolling, then "get out of the way" as much as possible, without intervening to "correct" misconceptions, but rather to stimulate fruitful lines of questioning. Answer questions with new questions that urge the students on to further exploration.

Provide students just a bare minimum amount of background information to jump into the activity—the activity itself provides a context for guided discovery of how a science definition team works. At this point, enthusiasm and improvisational expressiveness are the necessary ingredients for success.

Present a few clear examples of science teams—such as spacecraft exploration, medical research, anthropological fieldwork. It is important to stimulate understanding that scientists work and communicate within a community of other scientists. The science community plays its role in society through its process of supporting or critiquing ideas and theories, in journals, at conferences, on the news.

A Word about Descartes and his Legacy to Science

René Descartes(1596-1650) played a pivotal role in the history of science. His system of Cartesian logic provided one of the fundamental tools of critical thinking and scientific analysis. He is credited (or blamed) for accelerating the tendency of Western thinkers to departmentalize, categorize, systematize—looking at reality in its parts. Yet our modern impression of seminal thinkers is often colored by the history of the following such a major figure inspired. Revisiting the original writings of a great scientist often leads to surprises! This Descartes quote seems out of character at first glance:

> We ought to bear in mind that all the sciences are so closely interconnected that it is much easier to study them together than to isolate one from the others. If, therefore, anyone genuinely desires to investigate the truth of things, he should not select some one particular science; all of them stand together and are interdependent.

Descartes placed this at the beginning of his argument, perhaps to remind us all to keep this interconnectedness as a framework to encompass all that followed. By setting this out at the beginning, he himself may have felt freed to focus on the parts, always having in mind the interdependent structure of scientific knowledge. Just as the novice dancer gets caught up in the details of counting out the steps and forgets that it is, after all, one flowing movement that the teacher is demonstrating, so Descartes set many minds in motions, and only now, centuries later, is science catching up with his original insight.

The collaborative nature of space exploration brings this home powerfully. Multimillion dollar budgets drawn from the public treasury necessitate the cooperation of scientists, engineers, managers, and educators, from diverse disciplines all working together to explore the unknown. The National Aeronautics and Space Administration (NASA), inaugurated under Dwight Eisenhower in 1958 on the heels of the Russian *Sputnik*, has become a program that is meant to bring benefits to all Americans in every way it can, from pure scientific research to technology spinoffs to innovative ways to communicate science knowledge to the public.

Warm-Up Activity: Why Should We Explore Space?

When we step outside and look at the sky, day or night, we cannot help but get an impression of the marvelous vastness of the universe. As young children, we each ask our first naive questions about the moon, the sun, the stars, the planets. We learn from our parents, our teachers, from books, television, and movies. We gather a whole host of stories, tidbits of facts, and bits and pieces of scientific theory to blend with our own impressions.

We take for granted the *idea* of space exploration. We have lived during the first generation in the history of humankind that has ventured to destinations beyond Earth, in person and through technological extensions of our senses—spacecraft with science instruments.

Why do we explore? Why do we as a civilization place such abundant resources—many billions of dollars, incalculable organization of human talent, political will, and international cooperation—at the service of exploring space? Is the human drive to expand the frontiers of knowledge enough of a reason? Does space exploration need to be balanced within the whole scheme of things, such as hunger, war, poverty?

Take this opportunity to discuss these big questions in small groups, as a whole class, in the form of a debate,

We take for granted the idea of space exploration. At left, students view tiles of the shuttle Atlantis. Below, at the controls of a shuttle simulator, four young scientists manipulate a shuttle that has been launched.

or in a sharing of opinions—in a manner that allows everyone to bring out their own thoughts and to stimulate research about why we should or should not care about space exploration?

Introduction: Modeling How Scientists Work in Groups

NASA scientists and engineers work together in groups, as teams, to create science goals, then design and implement space exploration missions to reach those goals! Many scientists work on project teams. A research team may be formed in various settings: the university, government facilities, or private industry. A problem to be solved or theory to be developed requires the efforts of more than one person's expertise. This does not mean that the scientist always works in groups. Individual effort to develop expertise and to work on the problem-at-hand is part of the whole process. The concept of a project team is to have a group of people with sufficiently diverse areas of expertise to bring a considerable breadth and depth of experience to create meaningful experiments and to provide robust critical discussion. In the classroom, experiments, research, and other types of projects can be modeled after science teams to reveal the dynamics of real-world experience.

Scientist explains how rocket thrust is calculated to put a shuttle in orbit.

Science Definition Team

When a good idea comes up, NASA funds a study phase, a *preproject*, to consider the best ways to explore a new destination in the Solar System.

A Science Definition Team, drawing scientists from many different disciplines, comes together to discuss what is already known or believed about a destination and to decide what questions should be asked. These questions are expressed in order of importance in a formal statement called the Core Science Objectives.

Then, the preproject can bring together a team of scientists, engineers, and science educators to begin planning the mission and designing a proposed spacecraft with all the advanced technologies it may need!

- This activity can be used as an introduction to a space science unit. It can also be practical as a culminating presentation of a group science project.
- Used before and after a study unit, such a simulation can provide the teacher with authentic assessment information to gauge student progress.
- The sequence of activities is meant to simulate how scientists define the objectives of a science exploration mission.
- The learning in this series of activities has to do with getting the big picture of how of a science team works from a point of not knowing the answer, to working together to create a plan that will likely provide some answers.

A Personal Note: Growing Up Scientific

The thrill of science is to go beyond the textbook to the direct processes that let you explore the unknown. I learned this, not only from school science, but also as part of growing up. My full name is Richard Edwin Shope III, named for both my father and grandfather, who were both research scientists. My late grandfather did most of his work for the Rockefeller Institute in New York City, investigating viruses—including one named for him, the *shope papilloma virus*. My father, now in active retirement, conducted research and taught classes in virology at the Veterinary College at the University of Minnesota, earning a reputation as a "born teacher." I have rich remembrances, visiting their labs filled with high-powered microscopes and spinning centrifuges, with racks of petri dishes and strange nutrient concoctions in sundry beakers. They each took me along when their work took them into the field—literally! In galoshes, we trudged through farmyard mud in search of earthworms that might harbor viruses picked up by wallowing pigs. Daubed with repellant, we stepped through mosquito-infested woods searching ecological niches for virus hide-outs. Along the way, we would talk—they each seemed to know everything! Yet each in his own way expressed a deeper truth—in actions more than words—that they were driven not by what they knew, but by the thrill of learning about what they *did not know!*

RICHARD SHOPE, M.S.Ed. in Science Education is the Coordinator for Outer Planets/Solar Probe Project, Education & Public Outreach Program at the Jet Propulsion Laboratory in Pasadena, CA. He will be featured in the Student Seminar at the upcoming annual conference of the California Association for the Gifted. He can be reached by e-mail at: shope@gte.net.

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Main Activity: Modeling How Scientists Work in Groups

BY RICHARD SHOPE

EXPRESSING THE BIG QUESTIONS AS CORE SCIENCE OBJECTIVES

Science Definition Teams establish a clear purpose for each space exploration mission.

- Where are we going?
- What do we really want to learn once we get there?
- How will this mission contribute to our knowledge of the solar system?

You can think of Core Science Objectives as expressions of these big questions as goals for the mission. The Core Science Objectives also define a framework to decide what capacities need to be built into the spacecraft and what experiments will be placed onto the spacecraft. The questions get answered by taking experimental measurements with science instruments. If we know what we want to ask, we can formulate Core Science Objectives. Then we're ready to design and build a spacecraft to explore space!

FORM YOUR OWN SCIENCE DEFINITION TEAM

This activity demonstrates how scientists and engineers work together as a team to accomplish a common set of research goals. Follow these steps. Discover your own mixture of the spectrum of realistic to imaginative, technical to communicative, exciting and dramatic.

1. Get a group together (3-7 students is about right).
   - Select teammates with a variety of skills and points of view.
   - Share leadership in ideas, tasks, talking and planning
2. Select a space destination to explore.
   - Be realistic, stay within the solar system, our present technological limit.
   - Be imaginative, choose any astronomical object or region.
3. Discover what you already know about it! Name? Size? Shape? Distance from the sun? How it fits into the whole picture of the solar system? The universe?
   - Be realistic, base your exploration on actual space exploration data.
   - Be imaginative, invent your own details about the destination.
4. Find any new information you can get your hands on.
   - Be realistic, refer to articles, textbooks, reliable internet sites.
   - Be imaginative, invent new discoveries or mysteries about the destination.
5. Create questions about what you want to learn about it.
   - Be realistic, select questions that grow out of what you know already.
   - Be imaginative, select questions that grow out of what you invented.
6. Write your own core science objectives for the mission.
   - Be technical, express objectives using precise scientific terminology.
   - Be communicative, express objectives in precise words everyone understands.
7. Present your ideas in a dynamic way to the whole class for critique and discussion.
   - Be exciting, using excellent audio-visual and public speaking techniques, make drawings, present viewgraphs, involve your whole group.
   - Be dramatic, create demonstrations of concepts using mime and storytelling, props and costumes, involve your whole group.

OUTER PLANETS/SOLAR PROBE PROJECT: FUTURE MISSION (You may choose to base your activity on the Europa Orbiter)

Scientific observations indicate that the bright surface of Jupiter's moon Europa is composed of water ice. How are we able to share in this grand adventure? This background information leads you to join in the scientific curiosity about Europa: to form your own Science Definition Team to create core science objectives, then to design and implement your own Mission to Europa!

What do we already know?

Galileo, the Italian astronomer, first saw Jupiter's moon Europa through his telescope back in 1610. Back in the late 1970s, Earth-based telescopic spectra showed that it was covered with water ice! In 1979, the Voyager spacecraft sent back the first views of surface features showing Europa's smooth icy surface, crisscrossed by fracture-like features hundreds of miles long.

Since 1995, the Galileo Project has been sending back spectacular close-up images and other data that have begun to give us a detailed look at a surface that resembles ice-covered areas on Earth. The Galileo Europa Mission is swinging by repeatedly to obtain even more and higher resolution images.

This exciting evidence has created a groundswell of curiosity in the scientific community. NASA plans to explore Europa in even more detail. Scientists are gathering now to formulate Core Science Objectives

for the Europa Orbiter, one of three Ice and Fire Missions of the Jet Propulsion Laboratory's Outer Planets/Solar Probe Project, scheduled to launch in 2003, to attempt to discover whether Europa has a liquid water ocean beneath its surface

Scientists have gathered together to express this question in terms of specific science objectives and specific measurement that can fulfill those objectives.

If you have access to the Internet, you can learn a lot more about the exploration of Europa through two main sources, both accessed through the NASA/JPL home page: **www.jpl.nasa.gov.** Once there you can click onto **JPL Missions**, and then go to **Current Missions** to find the **Galileo Europa Mission,** complete with downloadable close-up views of Europa. You can also explore **Future Missions** to find the **Europa Orbiter.**

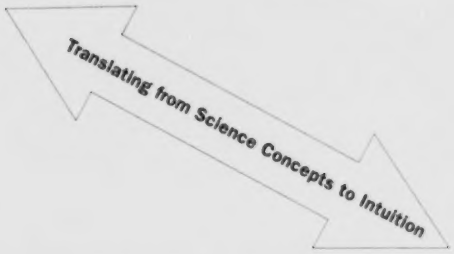
INTERNET ALERT: Beware of Pseudoscience

Just because it's on the Internet doesn't mean it's true! Just as with the written word, you have to be able to check the reliability of the source, and it's often not that easy. Information posted on official NASA web sites and official University web sites are reviewed for scientific accuracy. Their reputation depends on it. But space science excites many people with a wide variety of interests and beliefs. Cruising the Internet may land you on a site that expresses some wild ideas. You have to keep your critical thinking mind at work, just as you do when reading anything. If you find an interesting line of thought, you need to check and double-check the validity of the sources. Who is the person expressing the view? Is there an obvious bias? What do other scientists say about this point of view? Of course, there are legitimate differences of opinion on many science questions. It's not easy—but it's best to stay alert and skeptical as you evaluate Internet postings.

WHAT DO WE WANT TO LEARN AND HOW DO WE FIND OUT?

Understanding the Core Science and Measurement Objectives

Translate them into questions that relate directly to our senses. Each science instrument on board a spacecraft is an extension of our human senses. A spacecraft is essentially a remote sensing device, a way to bring information to our human senses by sending robotic machines into distant solar system locations where we cannot yet go ourselves. In many ways, such spacecraft are able to perceive more than we can, extending beyond our human senses. Yet it is we who interpret what it all means and how it fits into our knowledge of the universe.



TECHNICALLY SPEAKING: SCIENTIFIC TERMINOLOGY MAY SEEM DIFFICULT AT FIRST

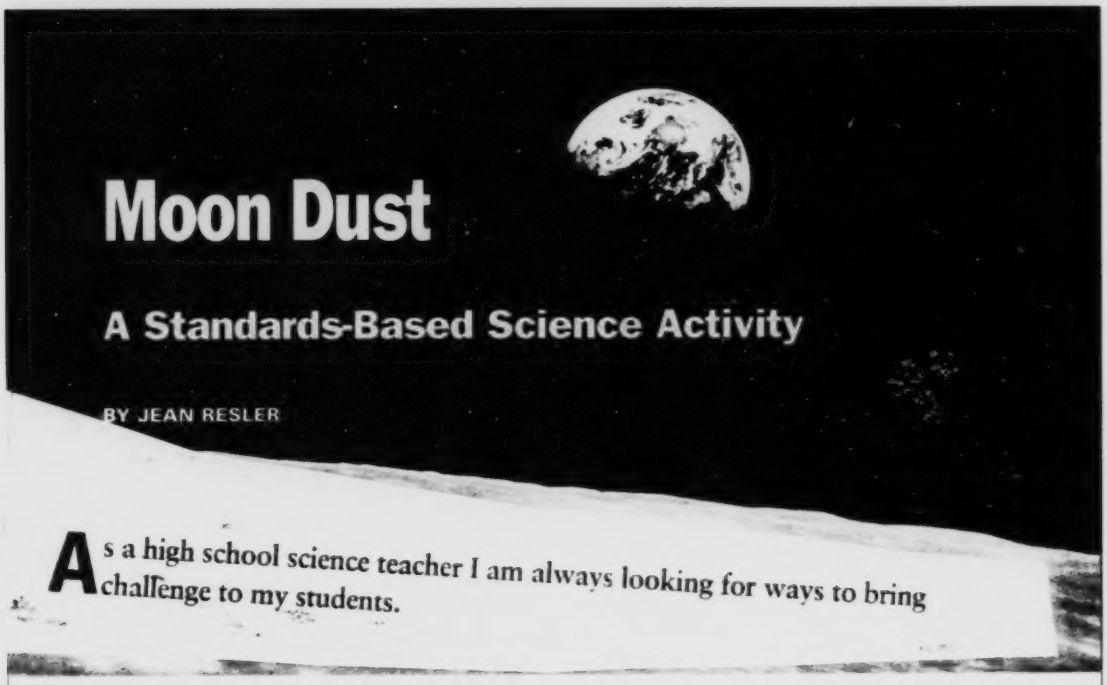
What We Want to Learn: Europa Orbiter Science Objectives (1998 draft)

- Characterize the surface processes (geology and geomorphology).
  - What's on the surface?
  - Can we draw a map?
  - Are there craters? Ridges? Rafts?
  - What color is everything?
  - What kind of ice formations are on the surface?
  - What is the chemistry of Europa's ice?
  - What else is mixed in the ice of Europa?
  - What kind of salts are mixed in the ice?
- Determine the extent of and depth of liquid water.
  - How deep does the ice go?
  - Will we reach liquid water?
  - Is there enough water to harbor an ocean?
- Determine the energy sources and response of the crust.
  - Can we infer an interior heat source?
  - What changes in shape do we observe?
  - Do the changes fit a model of ocean tides or rock tides?

REMOTELY SENSING: TRANSLATING THE CORE SCIENCE OBJECTIVES

How We Find Out: Europa Orbiter Measurement Objectives (1998 draft)

- Map the entire surface at 100 meter/line-pair resolution in several colors.
  - Take high-resolution images in a variety of wavelengths.
- Measure the depth of the ice crust by active radar sounding.
  - Bounce radar through the ice watching for scatter patterns.
  - Some scatter patterns may indicate stronger evidence for liquid water.
- Characterize the tidal response of the surface by altimetry and geodesy (~1 meter altitude resolution).
  - Bounce a laser beam and measure its echo while being tracked from Earth. After many samples, a model of the changing shape of Europa can be put together. The greater the shape change, the more likely the presence of an ocean.



Moon Dust

A Standards-Based Science Activity

BY JEAN RESLER

As a high school science teacher I am always looking for ways to bring challenge to my students.

I have found that using unusual materials and imagination is a good way to spark interest and make science appealing. The need to also write curriculum to standards and deliver it in a mixed-ability grouping can be demanding for the teacher as well.

Planning Standards-Based Lessons for Gifted

Planning standards-based lessons for gifted and able students in mixed-ability groups is tricky but can be accomplished successfully when considered from a variety of perspectives. These are some guiding questions that I find to be useful when taking a lesson or activity from the idea stage to a workable plan based on standards. When choosing or developing an activity, focus on student learning, asking first and foremost:

- What knowledge is the lesson teaching or assessing?
- Does the lesson challenge the student appropriately?
- Is the knowledge appropriate for the student, both chronologically and developmentally?
- What prior knowledge and skills must the student have in order to be successful?
- How does the lesson connect with previous and subsequent activities?
- Is the task interesting and authentic to students so that it is valued as an application of knowledge or skills learned?
- Is the activity structured to accommodate a variety of learning abilities and styles?

Introducing the Lesson

When introducing the lesson to students these questions serve as a guide:

- How will students recall previously learned knowledge and skills necessary for the new task?
- Are instructions for the task clear and free of errors so that student frustration is minimized?
- Do students have a clear vision of the final product so the opportunity for student success is maximized?
- Are evaluation criteria made known to students?
- Is there a guide for scoring student work?

Final and Important Questions

- What teacher preparation is necessary and how will the activity be facilitated so that materials, space, and time are managed in an efficient manner?
- What teaching strategies will be the most effective for this activity?

Moon Dust is an activity that was developed with these considerations in mind. ■

JEAN RESLER is a district science resource teacher for the San Jose Unified School District. She has been very active in the development of science standards for the district and the writing of standards-based curriculum.

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MOON DUST

Content Area: Science
Grade Span/Level: (9-10)

Overview: Students are given a mixture of "Moon Dust" to separate based on differences in the physical properties of its components. Students weigh the sample, separate each component, and determine its percent composition. Students calculate the economic value of the sample and of each separated component, based on a given dollar per gram equivalent.

Procedural Knowledge: The student:

- Understands and uses scientific tools and technologies
- Uses laboratory skills, techniques and apparatus to conduct more complex investigations
- Selects and uses appropriate techniques for separating mixtures
- Selects and uses appropriate techniques for measuring mass
- Uses a variety of tools, including technology, to apply mathematical operations to data analysis and interpretation during scientific investigations
- Understands and uses appropriate mathematical operations and formulas for calculating percent composition

Declarative Knowledge: The student:

- Understands and applies the concepts of physical science
- Knows that physical separation of substances in a mixture depend upon differences in their physical properties

Lifelong Learning Standard: The student

- Is an informed thinker
- Identifies, defines and solves problems

Preparation: This task can be used as a review of methods for separating substances from a mixture, based upon differences in their physical properties. It may also serve as an instructional or culminating activity for determining percent composition by mass. To successfully complete this task, students should have declarative knowledge of evaporation, filtration, magnetism, and percent composition. Students should also have procedural knowledge for finding the mass of an object, physical separation techniques, and mathematical operations for calculating percent composition.

Prepare a mixture of sand, salt, iron filings, and gravel. Allow students to determine the method and equipment needed to separate each component. Have available: various containers, evaporating dishes, magnets (each covered with a baggie to prevent filings from sticking to the magnet), screening, balances, hot plates, funnels, filter paper.

Student Instructions: NASA's Apollo 113 mission has recently returned safely from the moon with soil samples from the moon's surface. A sample of this "moon dust" is valued at $100/gram. An analysis of the sample shows that it contains the following which can each be sold separately:

Gravel	$20/gram
Sand	$50/gram
Salt	$100/gram
Iron	$200/gram

You are a mineralogist who works for NASA. Your job is to:

1. Find the dollar value of the mixed sample of "moon dust"
2. Separate the gravel, sand, salt and iron
3. Find the percent composition by mass for each: gravel, sand, salt and iron
4. Find the dollar value of each: gravel, sand, salt and iron
5. Find out if the "moon dust" is more valuable when sold mixed or when each component is sold separately

6. Choose a method to present your findings that will include the following:

Problem: Define the problem clearly.

Hypothesis: What separation methods do you think will work best? Why? Is sequence important? Why?

Experiment: List all materials and equipment used.

Procedure: Explain what you did in a step-by-step method. Be specific so that your procedures could be repeated by someone else.
Results: Show calculations for each step that leads to computation of percent composition and dollar value of each component. Use a table to organize your information/data. Use correct units of measurement. Explain your findings in narrative form.

Conclusion: What did your results tell you? Could your have done anything to make your experiment work better?

Assessment: Your work will be evaluated on your ability to:

- Use appropriate methods for separating mixtures
- Use appropriate methods for measuring mass
- Calculate percent composition by mass
- Identify, define and solve problems

Your work will be evaluated on the following four-point rubric:

4

Identifies and defines problem with accuracy and clarity, posing a variety of plausible solutions. Thoroughly understands underlying concepts for separating the components of mixtures and finding percent composition. Selects appropriate laboratory techniques with purpose and uses apparatus with accuracy. Uses appropriate mathematical operations and formulas for calculating percent composition with precision and accuracy.

3

Identifies and defines problem, posing several solutions. Understands underlying concepts for separating the components of mixtures and finding percent composition. Selects appropriate laboratory techniques and uses apparatus correctly. Uses appropriate mathematical operations and formulas for calculating percent composition accurately.

2

Identifies and defines problem, posing solutions with hesitation and limited understanding. Shows limited understanding of underlying concepts for separating the components of mixtures and finding their percent composition. Selects and uses laboratory techniques and/or apparatus with some errors. Computes percent composition with some errors and limited understanding.

1

Identifies and defines problem, posing solutions with difficulty. Shows incomplete and inaccurate understanding of underlying concepts for separating the components of mixtures and finding percent composition. Selects and uses laboratory techniques and/or apparatus incorrectly. Computes percent composition inaccurately and without understanding.

Invitation to a Science Shower

BY DEBRA JOHNSON

Young gifted scientists need a variety of opportunities to conduct scientific investigations. Such opportunities are often limited, however, by difficulty in obtaining and maintaining adequate science supplies. A school-wide science shower, sponsored by science teachers, is a great way to acquire additional science supplies and materials, and is great fun for all involved.

Use the following planning guide to help you get started in planning a school-wide science shower. This event will thrill science teachers and possibly help a young scientist on the way to developing a new scientific discovery. ■

DEBRA JOHNSON is a sixth-grade teacher at Almeria Middle School in Fontana, CA. She also serves as the Associate Editor for Youth Pages for the *Communicator*.

Planning Guide

Science Shower Helpers

Front Door Greeter: For a large shower, such as an open house, have someone assist guests as they arrive, take coats and gifts, and have guests sign the guest book.

Food & Beverages: Arrange for servers and volunteers to help with food and beverage preparation and refilling items as they are consumed.

Activity Director: Enlist the aid of an outgoing friend to make introductions, encourage circulating and mingling, and coordinate activities.

Photographer: Photographs are a nice memory of your science shower. Solicit the help of a professional photographer or ask a friend to photograph the party events.

Suggested Activities or Themes

- Famous scientists of the 20th century
- Student presentations of mini-science projects
- Guest speaker from the scientific community
- Student scientific demonstrations
- Earth science theme
- Life science theme
- Physical science theme
- Famous scientists costume theme

To-Do List for Science Shower

6- 8 weeks before the science shower:

- ☐ Set a budget.
- ☐ Choose the type of shower (buffet, sit-down dinner, dessert, and so on).
- ☐ Select a theme (formal, costume, and so on).
- ☐ Decide on the date, time, and place.
- ☐ Make reservations for facilities, caterers, photographers, and other service providers.
- ☐ Prepare a guest list with addresses and phone numbers.
- ☐ Make or purchase invitations, include an RSVP notice.
- ☐ Survey science teachers for a list of materials and supplies students need to conduct successful scientific investigations in their classrooms. Include this list with the invitations.
- ☐ Invite guest speaker from scientific community. Upon agreeing to speak, send a confirmation letter to the guest speaker.
- ☐ Meet with students and teachers to plan the presentation of mini-science projects.
- ☐ Invite students to design science shower posters that advertise the science shower.

3-4 weeks before the science shower:

- ☐ Address and mail invitations.
- ☐ Plan food and beverages to serve.
- ☐ Arrange for extra help, such as a food servers and a baby-sitter.
- ☐ Think about supplies you'll need, such as extra chairs, dishes, and napkins.
- ☐ Plan and purchase decorations.
- ☐ Prepare a program or agenda.
- ☐ Have student-designed science shower posters strategically placed around the school and community.
- ☐ Regularly meet with students and teachers to check on progression of science shower presentations. Plan a dress rehearsal to insure everyone knows what to do.

1-2 weeks before the science shower:

- Call to confirm all orders and extra help (greeters, photographer, food servers, baby-sitter).
- Create an attending guest list from the RSVP's you received.
- Hold student rehearsals if students are presenting.
- Send a reminder memo to guest speaker.
- Meet with students to make final preparations and ensure all projects or presentations are ready.

The day before the science shower:

- Decorate the room where the science shower is to be held.
- Set out supplies and dishes for the party.
- Check out your furniture arrangement and general decor. Move any items that are breakable or in the way.
- Create a time chart for the day of the shower and list tasks with the times that they need to be completed. This is helpful for anyone who is helping with the final shower setup and preparation.

Tips for Success

1. When sending out a survey to science teachers, emphasize the need to include small items as well as large ones. Smaller items will make it possible for more people to contribute. Combine individual requests into one list and include quantities for each item listed. Save individual lists so specific requests can be filled after the science shower.
2. Don't mail science shower invitations too far in advance of the event date. The longer the period of time between the time invitations and requests for science shower gifts are sent, the easier it will be for people to forget the event.
3. Remember to state in your invitation that a gift from the science shower gift list is required for admittance to the science shower.
4. Use colorful decorations. Balloons and colored streamers are inexpensive ways to really dress things up.
5. Food for the event should be kept simple. A specially decorated cake reflecting the theme of the science shower is always a pleaser. A local bakery in your area may have some ideas. It doesn't hurt to ask. And who knows, you may even find a generous baker willing to donate a cake. Another suggestion for keeping the expense of the event at a minimum would be to have teachers who will be the receivers of the science shower gifts provide refreshments.
6. Whether or not you hold games or other group activities will depend upon the number of guests attending. Suggestions should be taken from participating staff members for possible games or activities.
7. Science shower gifts should be opened after the opening program and related activities. Each teacher may take turns opening a gift and then sharing the gift with the audience. Be sure to have a recorder ready to record the name of the gift and the contributor.
8. At the conclusion of the science shower, thank-you notes need to be sent specifically thanking each contributor for his or her gift. These thank-you notes should be signed by all teachers receiving science shower gifts. Along with thank-you notes, a certificate acknowledging each contribution is a nice form of recognition and can be easily produced on a computer. Recognition of contributors and their contributions should also be included in a special school newsletter article.

Survey science teachers for a list of materials and supplies students need to conduct successful scientific investigations in their classrooms. Include this list with the invitations.

If your school holds a science shower, take pictures! These are great to post around the school and to put in a special science shower scrapbook. Also, the editors at the *Communicator* would be very interested in hearing about your school's science shower.

MATHEMATICALLY PROMISING

Continued from 1

mathematical reasoning and who can approach problems creatively and intuitively. Even the best mathematics students in many of our schools admit that they do not work very hard and could do a lot more if anyone challenged them. For them, mathematics is often a boring sequence of repetitious tasks that they have mastered long before their homework is done, often years before.

Need for Challenge—A Student Speaks Out

As noted by Dan, a 16-year-old high school senior and National Merit Finalist, who completed Advanced Placement Calculus BC in his junior year, "It seems to me that the challenge presented in math courses could be greatly increased. In my opinion, if the teacher holds a high standard for the students, the students will rise to meet that standard. Therefore, why do we spend six years teaching our children the four operations when this material could be covered in far less time? Perhaps it is because teachers spend nearly half of each year reviewing mathematical principles learned in previous years—perhaps if teachers expect more from their students, the students will also do more."

Dan echoes what many of our top mathematics students recognize. Teachers, parents, students, and indeed, members of society in general need to value, recognize, and develop mathematical promise in increasing numbers of students and must challenge them to meet and exceed higher-level expectations.

TIMSS, NCTM *Principles and Standards,* and the NCTM Task Force on Mathematically Promising Students

In the *Principles and Standards for School Mathematics: Discussion Draft* (NCTM, 1998, an update to the 1989 NCTM Standards), "mathematics for all" is considered "important because it challenges a pervasive belief among some members of society that a great number of students are not capable of acquiring mathematical proficiency" (NCTM, 1998, p. 23, available online at www.nctm.org).

We need to increase the mathematical challenge and complexity, and decrease the unnecessary repetition for all our students, but especially for the top students. We must raise both the number of top mathematics students and the levels of the abilities of these students. We can no longer allow students and their parents and teachers the luxury of believing that mathematical abilities are something that a person is either born with or not; they must understand that math competency can be developed but that it requires hard work. Too many students glide through their mathematics classes without ever really thinking deeply, led by teachers who expect only memorized responses to simplistic questions.

"...with a curriculum that is 'an inch deep and a mile wide,' it does not help students to cover a shallow curriculum faster or to add even more topics at a low level."

As noted by Stigler and Stevenson (1991, p. 20), "Teachers ask questions for different reasons in the United States and Japan. In the United States, the purpose of a question is to get an answer. In Japan, teachers pose questions to stimulate thought. A Japanese teacher considers a question to be a poor one if it elicits an immediate answer, for this indicates that students were not challenged to think." The ability to pose and solve complex problems, to think deeply, and to reason mathematically is also noted by many business leaders as being of paramount importance for an effective work force for the twenty-first century; unfortunately today's students are often lacking in this ability.

Results from the Third International Mathematics and Science Study (TIMSS, http://nces.ed.gov/TIMSS) showed that the best mathematics students in the United States are not achieving at the level of top students in other countries. In fourth grade, 9% of U. S. students scored above the 90th percentile worldwide on the TIMSS mathematics test. By eighth grade, only 5% of U. S. mathematics students tested scored above the 90th percentile. This is in contrast to countries such as Singapore where 39% of the fourth graders and 45% of the eighth graders or Japan where 23% of the fourth graders and 32% of the eighth graders scored among the top 10% of all students tested. Similarly, at the end of secondary school, the most advanced mathematics and physics students in the United States scored significantly below advanced students in many other countries. (For more information and sample questions see http://timss.enc.)

Definition and Identification of Mathematically Promising

In 1994, the NCTM Task Force on Mathematically Promising Students (Sheffield, et al, 1995) realized that to improve the numbers and the level of top mathematics students we must go beyond traditional definitions of gifted and talented that often include only three to five percent of students. Being mathemati-

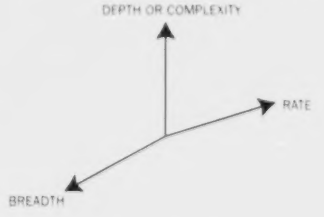
cians, the Task Force members defined mathematical promise as a function with several variables that should be maximized, and noted that identification of mathematically promising students should not be limited to a small number of students. Mathematical promise was seen as a function of factors including ability, motivation, belief, and experience or opportunity. This description recognizes that abilities can be enhanced and developed and acknowledges recent brain-functioning research that documents changes in the brain due to experiences. It also concedes that students are not always motivated to achieve at their highest possible levels and that the popular culture in the United States may even encourage students to disguise their mathematical abilities in order to avoid negative labels such as "nerd" or "geek."

Belief in one's ability to succeed and belief in the importance of mathematical success by the students themselves, teachers, peers, and parents are also recognized as important. Lack of such beliefs, especially by females, students of color, students from lower socio-economic groups, and students for whom English is a second language, is acknowledged as a significant barrier to learning for many students. The importance of the fourth variable— experience or opportunity to learn—is especially evident in international comparisons of mathematics students where research frequently finds that students in the United States are not exposed to the same high level of curriculum as students in several other countries. (A more in-depth look at these issues can be found in the 1999 NCTM book, *Developing Mathematically Promising Students*. See review on page 19.)

Mathematics Curriculum and Instruction

After the TIMSS study was publicized, a common analysis of the mathematics curriculum in the United States described it as "an inch deep and a mile wide." (Schmidt, et al. 1996). Mathematics textbooks in the United States tend to cover large numbers of topics at a relatively shallow level and repeat the same topics for years. For example, it is not uncommon to see children studying whole number addition with regrouping each year from first grade through sixth grade and sometimes even later. This is especially detrimental to good mathematics students who have already mastered the content of the mathematics program and are bored with the repetition.

Traditionally, discussions of serving the needs of mathematically promising students in the United States have centered on a debate of whether to accelerate or enrich the mathematics curriculum for talented students. However, with a curriculum that is "an inch deep and a mile wide," it does not help students to cover a shallow curriculum faster or to add even more topics at a low level. Teachers should recognize the need to look at a program that is at least three-dimensional as in the following model.



This model illustrates that differentiation of services for our most promising students should not only look at changing the rate of presentation or the number of the mathematical topics, but must also look at changing the depth and complexities of the mathematical investigations. Promising students should be encouraged to take time to think deeply about simple things and explore problems in depth, investigating patterns, verifying hypotheses, justifying generalizations, and making connections among mathematical ideas and from mathematics to the world around them.

Don't Just Answer the Questions, Question the Answers

I recently had the opportunity to be a "Mathematician in Residence" at a middle school in Eastern Kentucky. During the four days I spent at the school, I taught several classes of seventh and eighth graders, met with parents and school administrators, and spent many hours with teachers looking at the issues involved in creating a world-class mathematics program where all students could develop their mathematical promise to the fullest extent possible. We developed techniques for maximizing services for students along all three dimensions of the model—rate, breadth, and depth.

Rate

A major issue for many bright mathematics students and their parents and teachers is whether to accelerate middle grade students into Algebra I and/or high school geometry. One concern with acceleration is that students will miss the opportunity for in-depth exploration of important areas of the curriculum including proportional reasoning, number theory, operations with rational and irrational numbers, logic, geometry, measurement, probability, and statistics. Another concern is that the traditional high school courses that separate mathematics into geometry and algebra are not the most appropriate way to teach these subjects to high school students and may be even less appropriate for middle grades students. Therefore, in determining the best approach for the top mathematics students at the middle school, a number of agreements were made:

- There should be no low-level regular mathematics classes and all other classes should include all critical areas of the middle grades curriculum, not just algebra.

- Students who had previously failed or were currently failing mathematics would be required to take a second mathematics class during the "enrichment" period of the day until that student could demonstrate mastery of the required content.
- An advanced mathematics course in both seventh and eighth grades would be established to prepare students who desired high-level Advanced Placement classes in high school.

The advanced seventh and eighth grade classes were planned in conjunction with the high school mathematics teachers, and designed to include all the material that would be in the corresponding high school classes; consequently, students could move seamlessly into the advanced mathematics classes at the high school. In addition, the *NCTM Principles and Standards*, the United States Department of Education monograph on exemplary mathematics programs, the Kentucky Mathematics Core Content (www.kde.state.ky.us/oapd/curric/corecontent/core_content_index_version_30.asp), and the Japanese middle school mathematics curriculum guidelines were analyzed to determine the most appropriate content for these courses.

Additional activities in progress include:

- Elementary teachers are being involved to upgrade the quality of elementary mathematics classes to ensure that increasing numbers of elementary students are better prepared to take these more challenging classes.
- Pre and post tests and plans for curriculum compacting are being developed to ensure that students master topics and are able to move ahead without undue repetition.
- Plans have been made to offer the SAT or ACT tests to top students in seventh grade as part of the Talent Search for the Institute for the Academic Advancement of Youth (http://www.jhu.edu/~gifted/ts/html7ts.html).
- Arrangements are being made to allow exceptionally precocious students to take mathematics classes with older advanced students in the district, including arranging for transportation of middle school students to the high school, if necessary.
- The high school is looking into adding additional advanced placement mathematics courses as more and more students are prepared for them.
- Internet-based and interactive television courses are being investigated as a possibility for students who have exhausted the courses offered at the high school.

Mathematics is not a set of arbitrary rules that were devised to give students trouble in school, but is a beautifully crafted system that grows and develops the more it is studied."

Breadth

As mentioned earlier, the mathematics curriculum in the United States generally covers many more topics every year than the corresponding curriculum in most other countries, and the shallowness of this curriculum is of great concern. At the same time, however, there are often too few opportunities for students to study significant mathematics topics; recent ones such as fractals and topics that can be studied on a complex level without a background in calculus (such as some topics in number theory) are especially lacking.

Elementary mathematics teachers and some middle school teachers may not have the mathematics content background to offer students the opportunity to study some interesting mathematics topics in depth. With the technology available today, this does not need to be an insurmountable barrier. During my time as Mathematician in Residence, I was able to meet with parents, community leaders, and school district administrators as well as teachers to discuss ways that students might be assisted in their exploration of mathematics. We discussed ways to facilitate student participation in a variety of mathematics and science competitions with assistance from parents and others as coaches, academic boosters, and mathematics club leaders. The middle school already has a MATHCOUNTS team (http://www.mathcounts.org/), Odyssey of the Mind teams (http://www.odyssey.org/), and Academic Competition teams and students compete in the American Mathematics Contest (formerly the American Junior High School Mathematics Exam, www.unl.edu/amc/), but they were interested in expanding these opportunities to larger numbers of students. Parental assistance could be very useful not only in supporting and promoting these and other competitions, but also in sponsoring mathematics clubs.

Whether during school time or as an extracurricular activity, mathematics clubs can be an opportunity for students to get together to explore recreational mathematics topics, listen to speakers who apply mathematics in interesting ways, share their problem solving with an interested audience, and prepare for mathematics and science competitions. Clubs can also give students a

chance to use the Internet or other technologies to find interesting problems and to work with mentors and peers eager to take mathematical journeys with them. Parents often can supply the time and expertise needed to support and encourage such ventures. (For links to mathematical resources and competitions, the Report of the NCTM Task Force on Mathematically Promising Students, and sample open-ended algebra and geometry problems, see my web site at http://www.nku.edu/~sheffield/).

Depth and Complexity

Perhaps one of the most important dimensions of the model is that of depth and complexity. It is along this dimension that teachers and students can differentiate curriculum daily in their mathematics classes according to students' needs and interests. It is also through adding depth and complexity to mathematical problem solving and reasoning that students become powerful mathematical thinkers able to tackle the increasingly complex problems that they will face in the twenty-first century.

Figure 1

Questions to Help Students Add Depth and Complexity to Mathematical Reasoning

Comparisons and Relationships

1. How is this like other mathematical problems or patterns that I have seen? How does it differ?
2. How does this relate to "real-life" situations or models?
3. How are two factors or variables related?

Structure, Organization and Representation

1. How can I represent, simulate, model, or visualize these ideas in various ways?
2. How might I sort, organize, and present this information?
3. What are the essential elements of this problem?

Rules and Procedures

1. What steps might I follow to solve that? Are they reversible? Is there an easier or better way?
2. Do I have enough information? Too much information? Conflicting information?
3. What if I change one or more parts of the problem? How does that affect the outcomes?

Patterns and Generalizations

1. What patterns do I see in this data?
2. Can I generalize these patterns?

Reasoning and Verification

1. Why does that work? If it does not work, why not?
2. Will that always work? Will that ever work?
3. Is that reasonable? Can you prove that? Are you sure?

Optimization and Measurement

1. How big is it? What is the largest possible answer? the smallest?
2. How many solutions are possible? Which is the best? What are the chances? What is the best chance?

Figure 2

A Problem for Exploration: Grades 7 & 8

What is the one-thousandth number in the following sequence?

1, 2, 2, 3, 3, 3, 4, 4, 4, 4, 5, 5, 5, 5, 5...

In solving this, some students saw the pattern right away and then wanted to write out the first 1000 numbers in the sequence. Most of them quickly tired of this, however, and began to look for other methods. Some students wrote out a chart similar to the following:

Number	Number of that Number	Total Number in Sequence
1	1	1
2	2	3
3	3	6
4	4	10
5	5	15
6	6	21
7		
8		

For students to appreciate the beauty and power of mathematics, they must first understand that mathematics is an attempt to describe and make sense of the patterns and regularities in the world around us. Mathematics is not a set of arbitrary rules that were devised to give students trouble in school, but is a beautifully crafted system that grows and develops the more it is studied. When solving a problem, the real mathematics often begins after the original question has been answered. While I was working with seventh and eighth graders, they began to appreciate that a good problem was never finished, and that an answer to a question only led to more interesting questions. One of the mottoes of the class was that they should not just answer the questions, but should question the answers. Good problems can be solved in a variety of ways and students need a chance to explain their reasoning. One problem should be a springboard for several others.

Students who understand and can solve the initial problem quickly should be taught to ask themselves questions that take the problem to deeper, more complex levels. You will find some questions in figure 1 to get students started. Figure 2 provides a sample problem that seventh and eighth graders explored on many levels.

When I introduced the sample problem to the mid-

dle school students where I was a Mathematician in Residence, nearly all students had a solution the following day and were eager to share their methods with anyone willing to listen. Their teachers were impressed and often surprised with the sophistication and creativity of several student responses, and are encouraging students to continue to ask ever-deeper questions about their investigations.

These students and their teachers are beginning to realize that they can each explore problems in their own way and at their own levels, continually challenging themselves to make new discoveries and to deepen their mathematical understandings. They have also challenged me to answer some of the questions they posed, and I need to get back to my own investigations. I have promised them some answers, and I can hardly wait to compare my answers to theirs. I am sure that I will also be amazed at their insights.

Several students completed the chart to find the number that gave the total of 1000 numbers. Other students recognized the pattern of the numbers in the third column as triangular numbers. They tried to remember a formula for finding all the triangular numbers but were generally not successful. Some then set out to find a formula that would always give them the "n" they need in the first column when they reach 1000 in the third column. One student recognized that if she doubled the numbers in the third column, she would get n•(n+1) and therefore reasoned that the formula to find the total in the third column is (n• (n+1)) ÷ 2.

Other students related the numbers in the third column to those found when doing the handshake problem that asks how many handshakes there are if every person in the room shakes hands with every other person. (The numbers in the third column are moved up one row from the handshake problem.) They tried to adjust the formula for the handshake problem to satisfy this pattern.

Other students might relate this problem to a famous problem given to Frederick Gauss in elementary school. His teacher asked the children to find the sum of all the numbers from one to one hundred. Gauss realized that if you write the numbers from 1 to 100 in ascending order under the numbers from 100 to 1 in descending order, each vertical pair of numbers adds to 101.

1	2	3	4	...	98	99	100
100	99	98	97	...	3	2	1

That is you get 100 pairs of 101 for a total of 10,100. Since this is double the number you need for the sum of only one row of numbers from 1 to 100, the total is 1/2 that or 5050. This gives the same formula noted above of (n•(n+1)) ÷ 2.

Many of the students saw the pattern of numbers in the third column as increasing by one more each time over the preceding numbers. For example, the difference between the third and fourth rows is 10 – 6 or 4 and the difference between the fifth and sixth rows is 15 – 10 or 5. Students with a greater algebra background might realize that a quadratic equation rather than a linear one produces this increasing pattern. That is, the formula for n will include n2 and not just n to the first power. Students with experience with graphing calculators might even realize that they can type columns one and three into lists in a graphing calculator, plot the points, and ask for a quadratic equation that would give the best fit to those points.

By the way, the answer is that 45 is the 1000th number in this pattern. At the end of writing the 44 44s, you will have written 44 • 45 ÷ 2 or 990 numbers. The tenth 45 that is written will be the 1000th number in the pattern. ■

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LINDA JENSEN SHEFFIELD, Ph.D., is a Regent's Professor at Northern Kentucky University where she specializes in Mathematics Education and Gifted Education. She will be featured at the March 2000 CAG conference where her latest publication, *Developing Mathematically Promising Students* will be available for book signing. You will also find this book reviewed in this issue of the *Communicator* on page 19. Sheffield can be reached at: Sheffield@nku.edu.

PERFECTIONISM

Continued from 1

the country. Most of us, with the best of intentions, recognize high ability—even giftedness—and do our part to encourage these tendencies. Unwittingly, we may be promoting perfectionism and misguiding gifted children into career paths we think are successful rather than allowing personal interests and experiences to guide children's decisions.

In this article, the difference between excellence and perfectionism is discussed to help teachers and parents identify these tendencies in gifted individuals. Then, discussion turns to science as it typically exists in the curriculum of American schools, and a vision of how it could be used to battle perfectionism is presented. Finally, problem based learning is discussed as a promising method for teaching science and shaping curriculum appropriate to the individual needs of gifted students in K-12 settings.

People with Perfectionistic Tendencies:

- Are set in their ways and often hypercritical
- Often feel dissatisfied with or even guilty about good work
- Argue about one or two points on a test, even when they don't affect the grade
- Are resentful of critiques of their work
- Work alone because no one is as good as they are
- Compulsively compare scores with those of other good students
- Are critical of, and refuse to associate with non-straight A students
- Procrastinate as a means of not facing the threat of failure
- Get upset if something started cannot be finished
- Avoid new experiences because they pose a threat of making mistakes or failing

Adapted from Adderholt-Elliott, 1987

The Plight of Perfectionism

Children displaying unusual abilities tend to stand out in the classroom or home environment. As adults notice their high abilities, expectations rise and children are often perceived as capable of lofty achievements. When adults praise remarkable achievement, the emotional stakes for youngsters increase, often leading to perfectionism. "This characteristic has been identified as a strong drive to achieve that results in striving students who are content only with A grades and top test scores" (Whitmore, 1980, p.146).

Excellence versus Perfectionism

Some individuals view perfectionism as a positive psychological tendency. The qualities of resiliency or "stick-withitness," continual self-reflection, and self-correction contribute to the positive assessment of the perfectionist in this scenario. Individuals displaying these tendencies often take pride in their work, meeting deadlines, and thoroughly completing projects. High self-esteem provides motivation and confidence to tackle uncertain and broadly described goals. In my view, however, this set of tendencies describes striving for excellence rather than perfectionism.

Perfectionism involves one or many of the tendencies listed in the sidebar. Individuals displaying these tendencies, either separately or in combination, are inhibited from taking part in even non-challenging activities for fear of failure; in student language this often means earning an A- or B, or having a GPA lower than 4.0!

Perfectionists rely on quantity rather than quality to feel a sense of accomplishment. "Ten awards is [sic] better than one award; Who's Who Among High School Students, National Merit Scholar, President of the Student Council, President of the Band, and President of the Sorority is [sic] better than being just one of these and doing the job well" (Piirto, 1999, p. 485).

These tendencies and perceptions of what they believe others expect of them, cause gifted children to strive unrealistically for perfection in all areas of their lives. Self-identity and self-worth are at stake and must be protected by living up to the expectations of others, while constantly agonizing over how to be best at everything. The perfectionist often perceives living as a series of coping strategies aimed at protecting a fragile self-identity. Perfectionism by this definition is unhealthy.

How can gifted individuals fight off the plight of perfectionism? Much of the answer lies in the training of teachers and provisions for a supportive classroom environment. Individuals trained to identify perfectionistic tendencies can begin to include options that foster and nurture healthy risk-taking activities.

Science as a content area provides a unique opportunity for teachers and students to safely explore and take risks during the elementary and secondary school years. Science can be a means of battling perfectionism. In the following section, some pitfalls to student risk taking are described from preschool to secondary school. However, I do not assume to have solutions to all obstacles that could be encountered.

The Sanctity of Science Instruction

It has always seemed to me that ability to think critically and creatively is the prime cause for every important discovery that man has made.

—Albert Einstein

Young toddlers freely explore their world causing much angst for many parents; fortunately toddlers are cute and that goes a long way

toward appeasing an aggravated adult! As the child's understanding of cautionary language grows (e.g. Hot! Ouch! No!), the child's tendency to explore freely is tempered by parents concerned about safety and well-being. Children learn that risk-taking has either physical (pain) or emotional (punishment) consequences. When children arrive at school age, they typically have elementary teachers with built-in aversions to math and science; as a result, their playful, imaginative, exploratory spirit withers further. At the secondary school level, science instills fear and anxiety in the minds and hearts of students as the world is examined through abstract vocabulary words, often poorly written tests, and fill-in-the-blank laboratory workbooks. Memorization and college preparation are primary focal points, with little emphasis on understanding and creative insight.

School Science Textbooks

The process of doing science is grounded in an innate tendency to explore and take risks. Unfortunately, this spirit of exploration is not encouraged by textbooks or most classroom teachers.

Texts have a limited amount of space to present a vast quantity of material. Rarely is the overall process of discovery included with details of the tremendous number of mistakes made while researchers experiment. For example, Alexander Graham Bell worked on several ideas from 1872 until 1876 that ultimately led to a patent on the telephone (see www.jefferson.village.virginia.edu/albell/albell.html for additional information). Yet, school texts, regardless of grade level, present two paragraphs or less describing the discovery of the telephone.

This is but one example of the encyclopedic method publishers employ when preparing science texts for schools. Their goal or theory is to provide broad resources for teachers who may choose specific topics to explore in detail. Unfortunately, teachers do not seem to be privy to this design plan. Textbooks often account for the entire curriculum presented to students.

In a similar manner, classroom teachers provide detailed laboratory experiences, often grading students on their responses to structured guidelines and fill-in-the-blank questions. Students learn there are correct answers that must be found to earn credit. Making mistakes or exploring alternative possibilities during the laboratory activity, decreases or eliminates a student's ability to earn credit.

Mistakes Are Learning

This is not an appropriate way to present the process of science to students. We make many mistakes on a daily basis that help clarify our understanding of ideas and events. With practice we can pare away superfluous possibilities in order to gain an accurate understanding about a phenomenon, or to find direction for additional exploration. In other words, mistakes are much more prevalent and productive than "correct" answers. Why isn't this process approach used in schools?

Many teachers are not comfortable teaching science, especially in the elementary and middle grades. Science instruction requires special content competencies that are not part of most elementary teachers' training. They often take only the minimum science requirement for graduation—frequently limited to a single course. They tend not to take courses in each science content area because of time limitations or personally perceived weaknesses in science knowledge and understanding.

Interestingly, most elementary science texts present material in a cross disciplinary manner, integrating biology, earth science, chemistry, and physics. But since this is not the way the content areas were taught to them in their teacher preparation courses, most elementary teachers lack confidence in teaching science, even if they have had science courses from all content areas. Additionally, teachers are burdened with the requirement of accountability. In typical classrooms, especially at the secondary level, credit is earned through testing. Science areas are separated from one another into specific curricular offerings with little or no integration, and taught by content specialist teachers. Gifted students may have a deep interest or passion in one area of science that can be nurtured by further study; but traditional sequencing of courses (i.e. earth science, biology, chemistry, then physics) preclude this option for most of them.

In this system, students are often physically moved in an assembly-line manner through science offerings. Each course is highly restricted in content and students are evaluated on the basis of what they do not know compared to others, rather than by how they can apply what they do know. This is very disheartening to gifted learners who exhibit creative or perfectionistic tendencies.

On A Positive Note

The study of science provides ways for individuals to explore the world around them-and wonder at the mysteries yet to be uncovered. Science provides the opportunity to play around and make grand mistakes, while at the same time developing critical thinking (and tinkering) skills through the processes of analysis synthesis, and evaluation.

Science is semi-structured risk-taking. When science is presented as an uncertain way of exploring, a parent or teacher can discourage perfectionistic tendencies in children. "An environment where risk taking is valued, in which trust is developed, and where mistakes are seen as cues to aid learning relieves students of the need to be perfect"

(Clark, 1997, p. 147).

Science is the process of mucking around—identifying problems, testing hypotheses, and drawing conclusions. To do science is to make mistakes, document the outcomes, learn from them, and then try again. Students gain understanding by following a trial-and-error scheme. Successful scientists revel in their mistakes, gaining conceptual understanding and applying this in interesting and novel ways to new explorations. If children recognize that much of the work in science involves making mistakes and then trying again, they will be less likely to become paralyzed perfectionists.

Science Standards and Gifted Education

The science education standards (National Research Council, 1996) provide a unified view regarding the teaching of science in K-12 schools. Representatives from all areas of science and science teaching contributed to and refined the standards based on outcomes necessary for entry level success in science occupations.

Examining one set of standards (see Program Standards sidebar), parents and teachers of the gifted can observe that "best practices" in science teaching aligns very well with "best practices" in gifted education. The argument that gifted education is elitist loses all credibility when this alignment is pointed out.

Is Change Possible?

The information presented thus far makes a strong case for changing practices in teaching science in schools. Many programs have been developed that address issues of change. Several involve federally funded grant monies providing support and expertise to elementary teachers wanting to include science more appropriately in their classrooms. However, the benefits of most of these programs are temporary. Once the funding period is over, classroom practices tend to drift back to textbook and worksheet focus.

Curriculum must be developed that considers the varied needs of students and teachers in the science classroom. It must be diversified to include all broad areas of science in an integrated manner, while also helping students take responsibility for their own learning. Moreover, the material must be developed with an open structure to allow all students —including the gifted—to learn at their own pace.

We must encourage teachers to develop a different philosophy of teaching than the one held by most of those currently practicing. We need to focus on placing responsibility for learning, assessment, and evaluation in the hands of the learners. The teacher in this setting acts sometimes as an expert mentor, other times as a communicator and negotiator, finding expert mentors for students. Classroom management becomes classroom leadership in this setting; and control evolves into a sense of community spirit and fairness for all involved in learning.

Can this frame of thinking be put into practice? Yes. Education programs at institutions across the country have adopted the National Science Education Standards (1996) as guidelines for teacher preparation. In addition, training in the special needs of gifted learners is an emphasis area for many of my colleagues in the teacher education field at both the preservice and in-service level. As educators become more aware of the individual needs of students in their classrooms, and professional development aligns with best practices articulated in the professional literature, teaching practices will change.

Table 1.

National Science Education Standards

The National Science Education Standards envision change throughout the system. The program standards encompass the following changes in emphases:

Less Emphasis On	More Emphasis On
Developing science programs at different grade levels independently of one another	Coordinating the development of the K-12 science program across grade levels
Using assessments unrelated to curriculum and teaching	Aligning curriculum, teaching, and assessment
Maintaining current resource allocations for books	Allocating resources necessary for hands-on inquiry teaching
Textbook and lecture-driven curriculum	Curriculum that includes a variety of components, such as laboratories emphasizing inquiry and field trips
Broad coverage of unconnected factual information	Curriculum that includes natural phenomena and science-related social issues that students encounter in everyday life
Treating science as a subject isolated from other school subjects	Connecting science to other school subjects, such as mathematics and social studies
Science learning opportunities that favor one group of students	Providing challenging opportunities for all students to learn science.

National Research Council, 1996, p. 224

In Practice: Problem Based Learning (PBL)

Is there an existing curriculum that can be used to help guide this evolutionary process? Yes. An interesting approach to science teaching has been adopted from the training programs for physicians. It involves clinical exploration and diagnosis of a patient's malady based on information that is not provided in complete detail. The approach places responsibility for attempts to solve the problem directly in the hands of students, thereby increasing the need for risk-taking tendencies and learning through a series of mistakes. This approach holds much promise as a means of battling perfectionism in gifted students in the science classroom.

Students are presented problems that are not clearly defined. They must determine which components are missing from the original information and then attempt to solve the problem. This framework was developed by medical educators to train doctors to include both the patient's experience and the doctor's diagnostic abilities in identifying and treating an illness.

PBL provides students with challenging opportunities to explore issues with open-ended structures. Rather than providing a discrete set of procedures to be followed, PBL encourages students to use their imagination and inventiveness to solve problems. They generate procedures to test various aspects of unclear problems. Mistakes are encouraged as a way of narrowing possibilities, and clearly articulating problems.

Assessment involves multiple layers of achievement including:

- The process used to develop and articulate the problem
- Procedures developed and their use in defining the problem
- Ongoing documentation of understanding and thinking processes
- Plausibility of the final outcome
- Reports based on the entire process.

In this model, students are placed in the role of the scientist. Prior experiences and beliefs are challenged as students struggle with the information provided in search of a plausible solution to the problem. Note that solutions to the problem are only one aspect of assessment and evaluation. This is where PBL used in the science classroom differs from that used in the medical training field. In medicine the outcome of identifying and treating the disease is of paramount concern. Treatment that does not match the disease can be harmful or fatal to the patient.

In the PBL science classroom, students gain credit for the procedures they use even when the outcome is incorrect. The goal in K-12 classrooms should be plausibility in relation to the process used to reach the outcome. PBL offers one example of curriculum that promotes the exploration and process of science rather than discovery of correct answers. More schools should be encouraged to adopt PBL science as a means of meeting the varied needs of students within our classrooms.

This may not sound very "scientific" since most of what is taught in K-12 schools revolves around correct and incorrect answers. Nevertheless, an open-ended process is essential to fostering thinking skills in students. Few discoveries made in science were developed on the first trial of an experiment. Most discoveries came about during a process of trial-and-error that lasted months—sometimes years—in many different laboratories. In scientific research, the one constant is that multiple failures lead to clearer understanding about a phenomenon. This should be the goal of science teaching in K-12 schools. Yes, "correct answers" are important. However, consistently producing correct responses teaches little and encourages perfectionism to the detriment of our children. ■

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ROBERT ARTHUR SCHULTZ, Ph.D., is an Assistant Professor at Texas Tech University where he is an educational generalist and teacher with emphases in Gifted Education, Science Education, and Curriculum Theory. He can be reached by e-mail at: rschultz@ttacs.ttu.edu, or by phone at 806-742-1997x301.

There are many hypotheses in science which are wrong. That's perfectly all right; they're the aperture to finding out what's right. Science is a self-correcting process. To be accepted, new ideas must survive the most rigorous standards of evidence and scrutiny.

—Carl Sagan

ART OF TEACHING SCIENCE

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science continues to dazzle us with discoveries, we should follow some guidelines in educating students. After all, the students we educate will soon have the power to effect change. These students must be knowledgeable and scientifically literate. It will be these students who will influence our legislatures to pass laws and other societal constraints. President Clinton (1997) outlined the following ideas and concepts as ones that we must impart to our students:

- Science benefits must be channeled toward making life better for all of us
- Science discoveries must not be used as a source for discrimination against any group or individual (genetic discrimination)
- Technology should not remove the privacy barrier and a free society
- Science is not God.

The Science Standards

As one faced with teaching science to gifted students, where do you begin? A plethora of reformed science curricula have appeared in recent times. What should you keep and what should you toss? And how much time should you devote to each standard? All of the most commonly sited standards are readily available on the Internet. These standards include:

- *California State Science Content Standards* (California State Board of Education) www.cde.ca.gov/board/board.html
- *Benchmark for Science Literacy* (AAAS) http://project2061.aaas.org/tools/atlas/gen_inst.htm
- *Kansas State Science Reform Curriculum* (Kansas Board of Education) http://www.ksbe.state.ks.us/outcomes/scidraft4.html
- *The National Science Education Standards* (NRC) http://monster.educ.kent.edu/deafed/9902c09.htm
- *Pathways to Science Standards* (NSTA) www.emporia.edu/scimath/catalog/ase0033.htm

Several steps are recommended for you as a teacher of science:

- Familiarize yourself with each of the Science Standards
- Generate a customized curriculum to mesh with your background and approach
- Maintain a breadth and depth that offers your students a solid background of scientific literacy.

An example of a major curriculum reform in the 1960s was the Biological Sciences Curriculum Study (BSCS). The study resulted in the publication of three textbooks with three different versions for teaching High School Biology: The Blue (molecular), the Yellow (physiological), and the Green (ecological). Teachers could adopt any one of these three versions, depending on their background training and specialization. In addition, there was a host of other publications which included many hands-on activities. Teacher training workshops were instituted to demonstrate the use of the materials. The success of BSCS was national and international in scope and still is.

In designing a course from these standards, you can customize a beautiful curriculum to fit the specific needs of gifted and talented students. You might use the 4-A model to translate the standards to determine whether or not each standard fits your needs by analyzing four dimensions:

- Alignment: Does it match state and national documents to district guidelines?
- Augmentation: Does it provide the conceptual framework and set-up the main concepts and instructional design and materials selection?
- Accessibility: Does it ensure that all students grasp and comprehend the concepts, knowledge and skills of the lesson?
- Assessment: Does it provide the feedback evidence of student learning?

To gain a better understanding of the process of conceptual change, the Biological Sciences Curriculum (BSCS) has used the 5-E model in many of its programs. Included in this model are: Engagement, Exploration, Explanation, Elaboration and Evaluation. More details on the 5-E Model can be found in Restructuring Science, (1999).

Science and Technology

Teachers can use technology as one of many strategies to enhance learning opportunities in the area of science. However, technology alone is not the solution. It is also necessary to have motivated students who are interested in learning science.That means creating an environment that encourages and enhances learning. Students are not designed to absorb information without direct interest. It is here that computers can help the teacher. Teachers know that feedback is important in motivation. The teacher can use interactive computer programs that provide instant feedback and correction as students try to understand a problem. Inquiry strategies such as cooperative projects, investigations, and laboratory experiences can help students learn conceptual understandings of science. This takes skill and experience to manage well and novice teachers may find it difficult to implement.

Science Fairs

Let us turn our attention to science fairs for a moment. The main purpose of encouraging students to prepare science fair projects is to provide additional motivation for young people to apply creativity and critical thought to the solution of science, engineering and mathematical problems. In so doing, students gain practice in developing scientific potential and communication skills as tomorrow's leaders.

The intent of science fair projects is for students to go through the process of asking questions and performing experiments in an attempt to find answers. Typically, a student poses a question or hypothesis, does some background research, then develops an experimental approach or

procedure that will produce data from which the student can draw conclusions to prove or disprove the hypothesis or answer the question.

Too many students, however, are quick to select topics that yield very little with respect to the scientific process. Projects such as dissections, library research on specific problems and issues, offer little or no experimental design. Such studies are questionable because they do not offer the opportunities to express curiosity or to experience discovery. Teachers with experience in basic research will be best qualified to offer help to their students in making wise selections.

A good science fair project directs the student's efforts toward a particular result or expectation. Undirected experimentation merely to find out what happens, is play—not science. Many science fair projects are simple demonstrations. It is cute to see that vinegar and baking soda together cause a reaction, and if the reaction occurs in a mock-up volcano, it is a distinctive demonstration. But that is all it is—a demonstration. Again it is what may be termed "cutsie science."

What is common among all sciences is the making of a hypothesis to explain observations, the gathering of data, and based on these data, the drawing of conclusions that demonstrate support for or against the original hypothesis. Thus, gifted students should be encouraged to select projects that lend themselves to the experimental approach with its controls, and to shy away from studies that are mundane, pointless and "cutsie."

Conclusions

Offering a curriculum based wholly on lectures can be the kiss of death. Conversely, a curriculum based totally on hands-on science can be lethal as well. Let's consider a model that is useful and has meaningful application. A formula to apply to the teaching of science might include:

Thinking Skills + Content + Resources + Research Skills + Product = Total Learning Experience

Thinking skills represent the umbrella for integrating the remaining elements of the above equation. It is here that the right questions must be asked.

Content provides depth, complexity, and core curriculum.

Resources of appropriate materials must be available to allow teachers to provide activities that are commensurate with the student's ability, interests, and needs.

Research skills are the expressions of creative, imaginative and responsible thoughts that guide students into intensive investigations.

Products represent the end result of the process. Gifted students need to be involved in the discussions of how they will share their work.

Learning is the desired outcome. Teachers of gifted students must maintain an accelerated pace at a more advanced level.

Our students must be prepared to understand the implications of scientific discovery. They must be astute in sifting and evaluating scientific programs worthy of support. Those with keen cognitive skills who are better informed represent the great potential for leadership. We must offer these students the best science as part of their educational experiences.

Science is conducted for the purpose of increasing our understanding of the world around us. Today, the ten fastest-growing industries are all a product of scientific discovery, including, microelectronics, biotechnology, materials science, telecommunications,computer-controlled tools and robots and computers. Down the road, nanotechnology, bioelectronics, artificial intelligence, information management and protecting the environment will become major players in the scientific arena.

The study of science lets us see what is happening in our world. We see how things fit together, and we learn what the world is made of. Science changes our lives by showing us the order of the natural world, and through that, its beauty. The human race depends on the advancement of science. Indeed, science is a way of life for our future children. As we enter a new century full of promise, molded by science, shaped by technology, and powered by knowledge, our students must have the scientific and technological background, training, and skills necessary to be competitive. They must be better armed with an overview of science that will reward them intellectually in a wide range of technological menus. From here they will be better adapted to make wise choices and informed decisions, and to make the world a better place. ■

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RICHARD A. BOOLOOTIAN, Ph.D., has spent over 21 years teaching science and chairing the science department at the Mirman School in Los Angeles; he was recently named as their Community Relations Officer. He is the author of several biology textbooks and serves on the Los Angeles County Science Fair Committee. He is also the Associate Editor for Special Projects for the *Communicator*.

MATHEMATICALLY TALENTED

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identify students who are truly mathematically talented.

Some mathematically talented students do not demonstrate outstanding academic achievement, display enthusiasm toward school mathematics programs, or get top grades in mathematics class. It is important to know that there are students like this, for their ability in mathematics is easily overlooked, even though they may exhibit other clues suggesting high ability in mathematics. There are many possible reasons why these students do not do well, but often it is at least in part because of a mismatch between the student and the mathematics program. Many of them refuse, or are unable, to conform to the expectations of programs that they see as uninteresting and inappropriate. For their part, educators may not recognize the true ability of these students or see a need for adjusting the existing mathematics program.

How Can Standardized Test Results Help in Recognizing Mathematical Talent?

Intelligence Tests

IQ test results often yield valuable information and may provide clues to the existence of mathematical talent. Used alone, however, these tests are not sufficient to identify high ability in mathematics. Mathematical talent is a specific aptitude, while an IQ score is a summary of many different aptitudes and abilities. An individual's IQ is made up of several different components, only some of which relate to mathematical ability. Suppose two students have the same IQ scores. One of them could have a high score in mathematical components and a low score in verbal components, while the other is just the opposite. The first student would be likely have to much greater mathematics ability than the second, even though they have the same overall IQ. Children with high IQ's--no matter how high the score--cannot be assumed to be mathematically talented. It could be a clue, but more information is needed.

Creativity Tests

There are differing opinions on how the results of creativity tests can be used to help identify high ability in mathematics. Although mathematically talented students display creativity when dealing with mathematical ideas, this is not always apparent in creativity test results. However, high creativity assessments, along with indications of intense interest in mathematics, do seem to be a significant clue of mathematical talent.

Mathematics Achievement Tests

Mathematics achievement tests also can provide valuable clues in identifying high ability in mathematics, but the results of these tests have to be interpreted carefully. Mathematics achievement tests are often computation-oriented and give little information about how a student actually reasons mathematically. Also, the tests seldom have enough difficult problems to appropriately assess the upper limits of a talented student's ability or show that this ability is qualitatively different from that of other very good, but not truly mathematically talented, students. If these limitations are kept in mind, the results of mathematics achievement tests can be useful. Students scoring above the 95th or 97th percentiles on national norms may have high ability in mathematics, but more information is needed to separate the high achievers from the truly gifted. It should not be assumed that there are no mathematically talented students among those scoring below the 95th percentile; those students will have to be recognized from other clues.

Mathematics Aptitude Tests

Standardized mathematics aptitude test results should be used in basically the same way that the results of mathematics achievement tests are used. Aptitude tests have some of the same limitations as achievement tests except that, because they are designed to place less emphasis on computational skills and more emphasis on mathematical reasoning skills, the results from these tests are often more useful in identifying mathematically talented students.

Out-of-Grade-Level Mathematics Aptitude Tests

Many of the limitations associated with mathematics aptitude tests can be reduced by administering out-of-grade-level versions of the tests. This process should be used only with students who already have demonstrated strong mathematics abilities on regular-grade-level instruments or those who show definite signs of high mathematics ability. An out-of-grade-level mathematics aptitude test is a test that is usually designed for and used with students about one and one-third times the age of the child being tested. For example, a 9-year-old third grader would be tested using an abilities test normally written for 12-year-old sixth graders. This gives a much better assessment of mathematical reasoning skills because the student must find ways to solve problems, many of which he or she has not been taught to do. These tests have many difficult problems that will challenge even

Figure 1. Identification Checklist

Student Name	Ability Test	Ach. Test	Gifted/Creative	Teacher-Parent Nominations	Out-of-Grade-Level Test
John Jones	97			yes-yes	
Sally Smith		95	yes		

the most capable students, thus making it possible to discriminate the truly talented from others who are just very good in mathematics.

The out-of-grade-level testing procedure has been used successfully in several mathematics talent searches and school mathematics programs with junior and senior high school students over the past 15 years. More recently, there have been programs that have successfully used the procedure in the elementary grades.

What Systematic Process Can be Used to Identify Mathematically Talented Students?

Correctly identifying mathematically talented students is not a simple task, and there is more than one way to go about it. Some common features of successful identification processes are combined in the following model. This model is intended to be implemented with a degree of flexibility in order to give mathematically talented students every opportunity to have their talent discovered. This may be especially important when looking for mathematical talent in minority or disadvantaged populations.

Figure 2. Testing Schedule

Current Grade (Fall)	Out-of-Grade-Level Test
1st	3rd grade - Fall
2nd	4th grade - Fall
3rd	5th grade - Spring
4th	7th grade - Fall
5th	8th grade - Fall
6th	9th grade - Spring
7th	11th grade - Fall
8th	12th grade - Fall

Phase One: Screening

The objective in phase one is to establish a group of students suspected of having high ability in mathematics. These students will be evaluated further in the next phase. In phase one, effort should be made not to miss potentially talented students.

Step One: An identification checklist (Figure 1) should be set up to record the names of students thought to have high ability in mathematics along with the clues that suggest their talent. Students scoring above the 95th percentile on a mathematics aptitude test are entered first. Next, those scoring above the 95th percentile on mathematics achievement tests who are not already on the list are added. If a student's name is already on the list, the test score is simply added to that student's record. In a like manner, students who are mentally gifted; students who are creative and have high interest in mathematics; and students nominated by parents, teachers, self, or peers can be added.

Step Two: The checklist information for each student should be reviewed. If the information collected for a particular student suggests that out-of-grade-level testing is not advisable, that student's name should be removed, because phase two testing may damage the egos of students who do not really excel in mathematics. However, caution should be exercised not to eliminate talented students in this process. Parent involvement in these decisions is recommended.

Phase Two: Out-Of-Grade-Level Mathematics Abilities Assessment

The objective in phase two is to separate the mathematically talented students from those who are merely good students in mathematics and to begin assessing the extent of the ability of the mathematically talented students.

Step One: Students who are scheduled to take the out-of-grade-level test, along with their parents, should be informed about the nature of this test and the reason it is being given. The out-of-grade-level test would then be administered with student and parent consent. Figure 2 provides a sample schedule for such testing.

Step Two: The results of each student's out-of-grade-level test should be evaluated in conjunction with the results of phase one screening. Generally, the student's out-of-grade-level score will be an indication of degree of mathematical talent. Scores above the 74th percentile represent a degree of mathematical talent similar to that of students identified in regional talent searches such as the one conducted by Johns Hopkins University. This level of talent places the student in the upper 1% of the population in mathematics ability. Scores above the 64th percentile denote a level of talent that most likely places the student in the upper 3% of the population. Students in these two groups would be identified as mathematically talented.

What Instructional Approaches Benefit Mathematically Talented Students?

Students identified as mathematically talented vary greatly in degree of talent and motivation. No single approach is best for all of these students. The design of each student's instructional program in mathematics should be based on an analysis of individual abilities and needs. For example, students with extremely high ability and motivation may profit more from a program that promotes rapid and relatively independent movement through instructional content. Students with less ability or lower motivation may do better in a program that is not paced so quickly and is more deliberate in developing the mathematical concepts being taught. There are some common features, however, that seem to be important ingredients in the mathematics programs of mathematically talented students.

The program should bring mathematically talented students together to work with one another in the area of mathematics. Students will benefit greatly, both academically and emotionally, from this type of experience. They will learn from each other, reinforce each other, and help each other over difficulties.

The program should stress mathematical reasoning and develop independent exploratory behavior. This type of program is exemplified by

discovery learning, looking for underlying principles, engaging in special projects in mathematics, problem solving, discovering formulas, looking for patterns, and organizing data to find relationships.

The mathematics program should deemphasize repetitious computational drill work and cyclical review. This type of work in mathematics should be minimal for all mathematically talented students. As ability in mathematics increases, the benefits to be gained from this type of activity decrease.

The scope of the mathematics curriculum should be extensive so that it will provide an adequate foundation for students who may become mathematicians in the future. In many programs the mathematics curriculum will have to be greatly expanded to meet this need.

The mathematics program should be flexibly paced. Flexibly paced means that students are placed at an appropriate instructional level on the basis of an assessment of their knowledge and skill. Each student is then allowed to progress at a pace limited only by his or her ability and motivation. Flexible pacing can be achieved in the following ways:

- Continuous progress. Students receive appropriate instruction daily and move ahead as they master content and skill.
- Compacted course. Students complete two or more courses in an abbreviated time.
- Advanced-level course. Students are presented with course content normally taught at a higher grade.
- Grade skipping. Students move ahead 1 or more years beyond the next level of promotion.
- Early entrance. Students enter elementary school, middle school, high school, or college earlier than the usual age.
- Concurrent or dual enrollment. Students at one school level take classes at another school level. For example, an elementary school student may take classes at the middle school.
- Credit by examination. Students receive credit for a course upon satisfactory completion of an examination or upon certification of mastery.

Conclusion

The fate of Sara and other mathematically talented students will be determined largely by the ability of their parents and educators to discover and nurture their special ability. The notion that these students will achieve their potential anyway is constantly refuted. For too many students like Sara, lack of appropriate mathematical nourishment seems to be the rule rather than the exception. At risk are the benefits that these children might gain from early advancement and the attitudes that these children will have toward mathematics, school, learning in general, and themselves. By discovering the mathematical talent of these students and using that knowledge to provide appropriate academic nurture, we have the greatest chance to help these individuals reach their gifted potential. ■

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RICHARD C. MILLER is the Supervisor of Gifted Programs, Appalachia Intermediate Unit 8, Department for Exceptional Children, Hollidaysburg, PA.

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GIFTED GIRLS

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Solutions

The relationships between a decline in self-concept and a decline in achievement indicates that identifying the special needs of gifted female students at school and at home should be a high priority for parents and teachers. Support and encouragement can be provided in the following ways:

- Find ways to develop gender-fair curricula for middle schools. Consider separate inservice time for male and female teachers to consider questions such as: How can I look from a girl's perspective at what and how I teach? What do I show girls through my actions and attitudes in the classroom?
- Deal directly and age appropriately with issues of power, gender, race and politics, taking care to include critical perspectives on these issues in the school curriculum.
- Begin early to nurture freedom from stereotyped expectations by recognizing and supporting the interests and talents of mathematically gifted girls. These talented girls need the support of adults to resist pressures to conform to outdated stereotypes that can limit self-efficacy and achievement in the field of mathematics and science.
- Take daughters to the workplace in their field of interest.
- Provide successful female role models and mentors in math and science related fields.
- Be aware that girls receive conflicting messages about their worth and place in our culture from schools, television, and movies. Counter these messages by engaging in critical discussions of these ideas and by reading and viewing age appropriate stories and biographies with strong female characters.

Instructional approaches that teachers may use that benefit mathematically talented girls vary greatly. The design of each student's instructional program in mathematics should be based on an analysis of individual abilities and needs. There are common features, however, that are important program components when it comes to meeting the needs of mathematically precocious females. Programs should:

- Bring mathematically talented students together to work with one another; this could include all-female mathematics classes. Students will benefit greatly, both academically and emotionally, from this type of experience.
- Stress mathematical reasoning and develop exploratory behavior by engaging students in special projects, problem solving, discovering formulas, looking for patterns, and organizing data to find relationships.
- De-emphasize repetitious computational drill work. As ability in mathematics increases, the benefit to be gained from this type of activity decreases.
- Use flexible pacing so that students are placed at an appropriate instructional level on the basis of assessment of their knowledge and skill. Each student is then allowed to progress at a pace limited only by her ability and motivation.
- Encourage girls to enroll and participate in all academic courses, especially math and science, and see that their contributions are valued in classroom discourse.

We cannot pretend that such change will occur as rapidly as it is needed; we cannot quickly erase that which has taken hundreds of years to produce. Yet the question still remains: How long must mathematically talented girls wait before female stereotypes are overcome, testing bias is eliminated, and parents, teachers, and their society expect them to develop to their full potential?

The gifts and talents of women in the fields of mathematics and sciences have long been an untapped resource. It is astonishing to think how our world might be different if the potential contributions of highly gifted females had been recognized and supported throughout the ages. Would the field of biochemistry have produced a cure for cancer? Would we have solutions to the problems of toxic radioactive waste in the field of nuclear physics? Could an extremely gifted female bioengineer have discovered a way to allow quadriplegics to walk again? We can only imagine the impact these gifted women may have had on our world. It is not too late change our perspective, increase awareness and remove the barriers to advanced achievement for gifted and talented females.

Many of us have heard the old adage "a journey of a thousand miles begins with the first step." Our first step must be then to recognize and support the unique needs of mathematically gifted girls and help them develop a strong belief in themselves, in their abilities, and the contributions they can make in the world. ■

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KARI SHARIF-FREIDIG is the GATE Coordinator for Placer Hills Union and Pleasant Valley School Districts; she also has ten years teaching experience of math and science at Weimar Hills Middle School. She earned her CAG Certificate of Completion in 1998. She can be reached by e-mail at: alawyer@pacbell.net.

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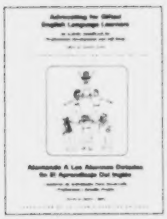

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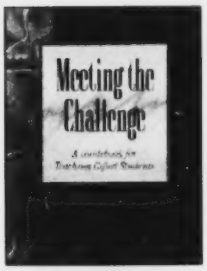

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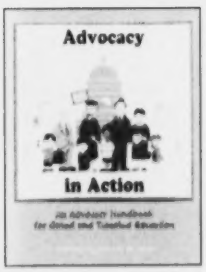

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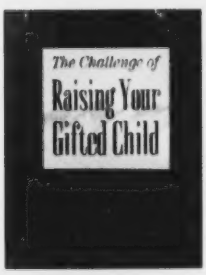

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COMMUNICATOR

CALIFORNIA ASSOCIATION FOR THE GIFTED

VOLUME 31, NO 2, SPRING 2000

ISSUE HIGHLIGHT

IDENTIFICATION

The process of identifying gifted children is a source of much concern for both parents and educators. This issue explores some of those concerns and provides some possible solutions

- **Common problems in identification**
- **What parents can expect**
- **When a child doesn't qualify**
- **Roles and responsibilities of educators and parents**
- **Finding gifted English Learners**
- **Nontraditional screening**
- **International perspectives**
- **Measurement resources**

UPCOMING ISSUE HIGHLIGHTS

Summer - Developing Passion, Leadership, Ethics

Fall - Highly Gifted

Winter - Examining Issues in Gifted Education

Spring - Assessment

The On-going Dilemma of Effective Identification Practices in Gifted Education

BY JOYCE VanTASSEL-BASKA

The identification of gifted children has long been a topic of great debate in the field of gifted education. More citations in the literature exist on this topic than on any other in the field. Moreover, it remains one of the most common problems of program development cited by school district personnel and state department coordinators in administering programs and services to gifted children.

Common Problems in Identification

There are many reasons for the intractable problems associated with identification of the gifted. One of them is related to the concept of absolute versus relative notions of giftedness. Newer definitional structures are attuned to the idea of relativity as we consider the context of the school, the nature of the student's background, and the demands of the program in order to make decisions about individual learners.

A second issue that continues to be problematic is recognition of the range of individual differences within the group of learners who might be designated "gifted." We tend to spend a great deal of time deciding who is the last student in the program versus the first student not recommended. Cutting on a continuum of human ability is a risky venture and one many times difficult to justify.

At the same time that such debates on identification rage, highly gifted students frequently idle without extensive and intensive enough services because programs are far more likely to focus resources on the mildly gifted group which may be larger and demand more attention.

Finally, there is the nagging concern that underrepresented groups are not adequately being assessed to be included in gifted programs. Thus we make the test the proverbial messenger to be attacked and continue to search for a better instrument that may reveal greater parity in performance.

Any one of these issues would be sufficient to keep identification at the top of concerns for local school districts in planning and implementing pro-

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Correction

The correct Internet address for Joseph Renzulli's article "What is This Thing Called Giftedness and How Do we Develop It? A Twenty-five Year Perspective," by Joseph Renzulli should be: www.gifted.uconn.edu. You will find it under "New Articles." We regret the error in the Winter issue.

On the Web

Check Out the Hoagies Home Page

The Hoagies' Gifted Education Page (www.hoagiesgifted.org/) is a very special resource where you can find the best online and print resources concerning gifted kids. It has an extensive section on identification of gifted children. You may exchange information with other parents, talk to teachers, find out about homeschool—even research schools across the country. Sign up for some of the great free newsletters. Visit soon.

You Know Your Child Is Gifted When...

The children's quotations you see scattered throughout this issue of the *Communicator* have been collected by Carolyn Kottmeyer, Webmistress of Hoagies' Gifted Education Page. You can find more examples on the Hoagies website.

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Contact: 860-486-4826 or epsadm08@uconnvm.uconn.edu

SEPTEMBER 21–24, 2000
3rd Annual Annemarie Roeper Symposium on the Intricate World of the Gifted Child
Chicago, IL
Contact: 662-329-7112 or beeney@muw.edu

NOVEMBER 1–5, 2000
National Association for Gifted Children (NAGC)
"Crossroads to the Future
Atlanta, GA
Contact: 202-785-4268

JULY 31–AUGUST 4, 2001
14th Biennial World Conference
World Council for Gifted and Talented Children
"The World of Information: Opportunities and Challenges for the Gifted and Talented"
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Contact: 818-368-7501 or www.worldgifted.org
Presentation proposals due November 1, 2000

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- Institutes and conferences for educators and families
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- Advocacy to assure funds for GATE programs
- Publications about differentiated curriculum and contemporary issues affecting gifted students

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LETTERS TO THE EDITOR
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MARGARET GOSFIELD

Identification. Ah the joys of being a district GATE coordinator. I remember the telephone calls most of all.

First came the calls of inquiry after parents received their letters of information telling them about the program. Many had gone over the list of characteristics carefully and wanted to confirm a match with their own children.

Just prior to testing came urgent calls from teachers wondering if they could add just one more child to the list of referrals.Along with them came parent calls wondering how their child might best prepare for the test.

And finally, after letters with testing results went out, the phone lines were jammed—mostly from parents whose children did not qualify. Interestingly enough, that was when I often received calls from fathers.

Clearly the identification process is not an exact science and districts continually work to improve their methods. But the number of phone calls demonstrates that it continues to be a cause of anxiety and concern. There were times when I wished that we didn't have to identify at all; but in order to provide specialized services, we must know who needs them.

Joyce VanTassel-Baska of the College of William and Mary in Williamsburg, VA sets the stage for us in *The On-going Dilemma of Effective Identification Practices in Gifted Education*. Her article contains a thoughtful and clear description of the common problems in identification, the elusiveness of giftedness, and valuable recommendations for best practices.

Carolyn Kottmeyer, Webmistress for the Hoagies' Gifted Education Page, provides parents with insights as to what parents can expect when notified by the school that it wishes to test their child for the GATE program. *We Request Your Permission...* is especially useful in its discussion of tests and test results, while Jackie Linn tackles the sensitive issue of what to tell parents and children when a child comes *Close But Not Quite*. And still related to testing, Marcia DiJiosia provides an update of San Diego's use of the Raven Standard Progressive Matrices.

The Communicator staff has prepared a nuts and bolts article, *Roles and Responsibilities*, which contains guidelines for all the adult participants in the identification process. Many of the suggestions are common-sense items, but we hope they will provide a refresher for those who are long-time practitioners, and helpful guides for those new to the field.

Identifying underserved populations is a continuing concern and you will find both articles and resource sites related to this issue. Jennifer Robles from Ventura, CA provides a district model of collaboration by its bilingual and gifted education programs in *Two Heads Are Better Than One*, while Sandra Kaplan, Emma Rodriguez, and Victoria Siegel propose nontraditional screening which they have found effective in the Los Angeles Unified School District.

A special feature of this issue is a section with international perspectives. CAG is fortunate to have two Global Affiliates, one in Russia and one in Mexico. We asked them to share identification practices in their respective countries and are pleased to include Janet Saenz' article, *Identification of Giftedness in Mexican Youth*, as well as the *Identification for Gifted Education Programs in Russia* by Elena Scheblanova and Natalia Shoumakova. We are also grateful to the Queensland (Australia) Association for Gifted and Talented Children for giving us permission to include their website page of characteristics of gifted and talented children. Finally, we wish to thank Barbara Clark, President of the World Council for Gifted and Talented Children, for letting us include the results of a recent survey conducted by the Council concerning international identification practices. We think you will find many common themes in these articles from around the world.

We have also tried to provide readers with a variety of resources for identification including:

- Harcourt Brace's Glossary of Basic Measurement Terms
- A collection of abstracts from the National Research Center on the Gifted and Talented describing a number of projects aimed at improving identification practices
- A list of instruments for measuring giftedness

The identification process will undoubtedly continue to be a cause for concern and anxiety; however, we hope this issue provides information and tools to make it less so. ■

We Request Your Permission...

Testing for GATE

BY CAROLYN KOTTMEYER

It may come as a surprise: A letter arrives requesting your permission to test your child for the school's gifted program. Perhaps it has some fancy acronym, like GATE—Gifted And Talented Education. As you read the letter, you may experience a variety of emotions, including pride and worry. The letter may even bring back good, or bad, memories of your school days.

TAKE THE PRESSURE OFF Don't make a big deal about testing. Make sure the child has a good night's sleep and a good breakfast.

For most parents, the next step is easy. Read, sign, and return the permission form. Generally, all this does is give the school permission to administer an IQ test to your child.

Your district may use a group test, such as the Ravens Progressive Matrix or the Otis Lennon Scholastic Abilities Test (OLSAT). The Ravens test has no reading, and students "learn"' how to progress through the test by completing a series of graphics. This is the preferred test for students who speak English as a second language, or those who are not proficient readers. The OLSAT is more traditional and includes various types of questions. In the "young" version, the teacher reads the questions; in the "old" version, students read on their own.

The district might administer an individual IQ test such as the Wechsler Intelligence Scale for Children version III (WISC-III). This will be given by a psychologist and may take up to an hour to administer. (For more information on the WISC, see www.gtworld.org/gtwisc.htm)

Preparing Your Child

Talk with your child beforehand so he isn't caught off guard when the test begins. Explain that there will be easy and hard questions, fun and difficult sections. Ask him to do his best. Don't make a big deal about testing; this is not a pass/fail situation and doesn't need to be stressful. Make sure he has a good night's sleep and a good breakfast. Most parents recommend that testing take place in the morning when the child is fresh—NOT after a full day of school.

Understanding Test Results

The Ravens results are usually given in a percentile format—95th percentile for example—as well as a standard or IQ score. The OLSAT also gives percentiles, and a standard or IQ score. It may also offer different percentiles for different subjects, and then an overall percentile and IQ score. The ceiling on the OLSAT is 150.

The WISC results are divided into three areas: a full-scale score, also known as an IQ score; two sub-scales known as the performance and verbal scales; and ten sub-test scores. For most gifted programs, the full scale or IQ score must be 130 or greater; this is the cutoff generally known as "gifted." For some programs, such as full-day self-contained or magnet gifted programs, a higher score, often 145, is required. This cutoff is generally known as "highly gifted." While there are two other differentiations of gifted, known as "exceptionally gifted" (160-180) and "profoundly gifted" (180 and above), these are scores that cannot be obtained using the WISC test. (Watch for the Fall issue of the *Communicator* which will focus on the highly, exceptionally, and profoundly gifted.)

It is important to ask for the 10 WISC sub-test scores if they aren't presented. These scores, scaled from 1-19, show if a child is particularly strong or weak in one or more areas. Combined, several of these may be used to indicate that additional testing might be in order for Attention Deficit Disorder (ADD) or other strengths or weaknesses, or even for vision problems. And if two or more of these subtest scores are ceiling scores of 17-19, it is possible that the WISC full-scale score is only a floor estimate–or the lowest possible score—for your child. He may need another test to determine the height of his range.

Test results are combined with the other criteria—teacher recom-

mendations, grades, other tests—that your district uses to identify gifted students.

Is GATE Right For My Child?

If your child scored 130 or better on the test and made the other district criteria, you have a decision to make. The school district will offer its standard gifted program. This might be a pull-out program, a clustered program, or a full-inclusion class.

Pull-out programs take gifted students out of class for a few hours one or more days each week. The child stays in the regular classroom the rest of the time. In most cases, the gifted child is ahead of her class, learns faster, and thinks deeper. The gifted pull-out may offer a few hours of education each week at her own level. It may present an opportunity to make new friends and to find other like-minded students. Remember, however, that children may be responsible for all regular class work or perhaps just the general concepts—not each individual worksheet—missed during the pull-out program. This varies by school and by teacher.

Other district options include a clustered program, which groups GATE-identified and near-GATE students together; and a full-inclusion program, in which the entire class is GATE-identified.

You must decide if the gifted program the school offers is right for your child.

Once you have approved the gifted program, your child may enter immediately, or school policy may require that he start the next school year. Either way, you should continue to monitor the situation as you do with all his schooling. Make sure this is the right program for him, is meeting his needs, and continues his education in a forward direction.

You are now the parent of a gifted child. Congratulations. And remember, this is the same child you had last week, and last year. Although you may expect greater things from her, she hasn't changed. Gifted children are like other children, but they are also different. And you are probably so used to those differences that you will see little change once your child is identified. Continue to enjoy your child as you always have, encouraging her, spending time with her, and giving her the opportunity to learn everything she wants to in school, home, and life. ■

CAROLYN KOTTMEYER is Webmistress of Hoagies' Gifted Education Page, and currently homeschooling her two highly gifted daughters in Downington, PA. She can be reached through the Hoagies home page at www.hoagiesgifted.org or by e-mail at: hoagies@chesco.com.

COMMONLY USED MEASURING INSTRUMENTS FOR THE IDENTIFICATION OF GIFTED CHILDREN

Individual Tests of Intelligence
- Stanford-Binet Intelligence Scale
- Wechsler Intelligence Scale for Children
- Leiter International Performance Scale
- Peabody Picture Vocabulary Test
- Slosson Intelligence Test

Group Intelligence Tests
- Otis-Lennon Mental Ability Test
- SRA Primary Mental Abilities Tests
- Kuhlman-Anderson Intelligence Tests
- Cognitive Abilities Tests
- Henmon-Nelson Test of Mental Ability

Cognitive Ability
- Stanford Binet Intelligence Scale
- Wechsler Intelligence Scales for Children
- Cognitive Abilities Tests
- Differential Aptitude Tests
- Kaufman Assessment Battery for Children

Visual and Performing Arts
- Seashore's Measures of Musical Talents
- Standardized Tests of Musical Intelligence
- Horn Art Aptitude Inventory
- Meier Art Tests

Alternative tests for atypical children
- Krantz Talent identification instrument
- Baldwin Identification Matrix
- Torrance's Creative Positives
- Raven's Progressive Matrices Test
- System of Multicultural Pluralistic Assessment (Sompa)

Academic ability
- Stanford Achievement Tests
- California Tests of Basic Skills
- Iowa Tests of Basic Skills
- Peabody Individual Achievement Test

Source: Clark, B. (1997). *Growing Up Gifted* (5th ed.).Upper Saddle River, New Jersey: Merrill, pp. 287 - 307.

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Close But Not Quite

When A Child Doesn't Make GATE

BY JACKIE LINN

Each year during the GATE identification period, coordinators are deluged with questions from parents and teachers. Most center on eligibility and are easy to answer: How will I be notified? What were my child's scores?

The dilemma comes when the child does not meet the criteria and is therefore not eligible. There are many answers to the question, "Why didn't my child make it?" Remember: What we say and how we respond is very important because it can directly impact the child in many ways.

Talking to Parents

Be straightforward when talking to parents. Keep the focus on positive outcomes for the child at all times. Consider emphasizing the following:

- Explain that this child has definite strengths that have been recognized through the referral process.
- Reassure them that the student is appropriately placed in the regular class setting and is expected to perform well there.
- Refer testing questions to the staff psychologists. These experts are well equipped to explain testing nuances.
- Ask about the student's interests or talents. Some—such as music, art, drama, and sports— may be be developed through alternative education programs. Encourage parents to assist the child in pursuing specific interests or passions.
- Confirm good parenting skills.
- Agree that GATE testing may not measure the areas in which this specific child excels. GATE identification is not a perfect process, but does follow a defined set of criteria, procedures and process for all students.
- Collaborate to develop positive things they might say to their child about not being included in GATE.

This can be a disappointing time for both parent and child. Address these feelings by emphasizing the child's tremendous potential. Being in a GATE program is not all that there is to life. Explain that GATE programs do not fit the needs of all students. Of course, parents should know that they can appeal the committee's decision.

It is possible for students to enter the program through alternative means, and these should be explained. In addition, there are other accelerated programs that do not require GATE identification for participation. Explain these programs, and redirect their energies towards positive academic success. Remind the parent that this child is a gift who will continue to need the love, support, nurturing and experiences that parents give best. Be sure to validate the child.

"Imagine being Michael Jordan's younger brother"

A few parents will persist, denying the reality that their child has not reached the level of performance needed to qualify for a GATE program. They may blame the identification system or school staff. Often the parent desires the GATE label more than the child. When this happens, it is critical that parents learn to value their child as an individual—not as someone with a GATE designation.

When children show disappointment, focus on positive strengths. Reassure them that they have not failed. Confirm their value and self-worth as individuals and as students.

Talking to Teachers

Teachers use their best judgment when referring students for GATE testing. They have invested a great deal of time and energy in the process and their feelings and work should be affirmed and supported.

If a student doesn't make the cut, teachers may get frustrated and say: The selection committee just doesn't know what this child can do! The test scores don't measure what this child knows!

Explain that the GATE selection committee reviews many written referrals and test scores. Combined with a criteria rubric, these provide a more objective view of the student. A teacher's positive referral, however, may not be enough to get a student into GATE.

Teachers are powerful advocates because they can compare a student's performance over time and through a variety of settings. They are in an excellent position to recommend placement. But they need to support the district's criteria and approach GATE referrals with the understanding that while GATE placement is ideal for some students, it is not for everyone—and realize that getting into GATE is not the only hallmark for success.

Staff training helps teachers focus on the differences between the gifted child and the high-achieving child. These are important distinctions. Staff training can help teachers learn strategies that provide students with extended learning opportunities through differentiated instruction. We rely on best teacher practices to assist in our search for students who consistently display exceptional abilities and talents.

The Difference Between Good and Exceptional

I often use the following basketball example to demonstrate the subtle differences between good and exceptional performances:

Many of us are fans of professional basketball. Most of us would agree that Michael Jordan is the most talented player basketball has

ever seen. He is highly gifted. He practices to sharpen his skills and constantly strives to improve. He is a great example of ability and talent combined with focus and practice. What makes him different from the other players? How does he consistently demonstrate that giftedness? What data do we have that confirms our observations?

Imagine being Michael Jordan's younger brother. You may be very good at the sport but not gifted. That means that you can still be successful, and that practice will make you better. It also means that you will never reach the same demonstration levels as your brother—though your work may be quite good and better than most. The Michael Jordans of our world are definitely different; we can see that through the work they perform repeatedly. But when they are not present, another leads the team. It's OK to be that person. ■

JACKIE LINN is Chair of the Capitol Region CAG Affiliate GATE Fifty Mile Club and is a committee member of CAG/PAC. She has been a GATE teacher, GATE program director, an Assistant Superintendent of Education Services, and is currently the Testing & Evaluation Coordinator for Lodi Unified School District (LUSD).

Thanks to Anne Cecchetti, LUSD's GATE Coordinator, for her input and assistance.

You know your child is gifted when...

Your eight-year-old son informs you that people shouldn't be scared of a Cyclopes because it has only one eye. Since it doesn't have depth perception it should be easy to evade!

WHAT'S NEW WITH THE RAVEN?

BY MARCIA DIJIOSIA

When the San Diego City Schools GATE Program began using the Raven Standard Progressive Matrices as its main method of identifying gifted students more than ten years ago, it did so after several years of research. The district wanted to be certain that it would be the best and fairest measure of general intelligence and identify the type of student who had the potential to succeed in its highly academic GATE Program. The Raven was able to discern the difference between a student who may simply be a high achiever and one who was able to think and reason and process information; one who was able to synthesize, analyze and evaluate relevant data to make abstract judgments about information; one who could transfer knowledge and apply it to successively more complex tasks.

Not only did the Raven have the ability to identify children with these particular gifts, but underrepresented populations had a better chance to qualify for GATE programs than with any other test. Because it is a nonreading test and one that allows the child to use his or her strength—be it visual or verbal—in order to complete the tasks, it gives the student more of an edge toward success. Also, because the test is a self-teaching instrument and does not rely upon past exposure to subject matter, students are given a more level playing field on which they are judged. The better they are able to teach themselves the strategies and apply them, the better they will do on the test. That is why the Raven, though not based on achievement, has actually been a better predictor of achievement test scores than traditional IQ tests.

Over the years, officials for both the San Diego City Schools and the Raven publishers have continued to study the test. It has been around since about 1936 and has been revised a couple of times, most recently in 1998. Because this assessment tool is being utilized more and more frequently for gifted identification, the test was revised to include a more complex series of task questions. As a result, older students do not "ceiling out" or need to reach a perfect score to be identified for GATE. They also found a small glitch in the middle of the instrument— a student who missed one strategy, would miss the successive strategies—or vice versa, if the child learned the particular strategy he would easily understand all the rest, making the assessment too simple at that point. The purpose was to build on knowledge. This problem was eliminated in the revision.

San Diego City Schools persists in its quest to use the best measure available. A search was conducted in 1999 for an additional test to administer with the Raven or as a replacement if something better could be found. It quickly became apparent that no one has yet been able to design a testing instrument that met the excellent standards of the Raven Progressive Matrices or met the requirements of fair testing practices. It appears the Raven will be part of gifted identification for many years into the future.

MARCIA DIJIOSIA is the Senior GATE Psychologist for San Diego City Schools. She is also the CAG educator representative from the Palomar Region.

Roles and Responsibilities

Working Together for Successful Identification of Gifted Students

BY THE COMMUNICATOR STAFF

Identification of gifted students continues to be one of the most difficult aspects of local programming. Large amounts of resources—especially time and materials—are expended in the process. It is fraught with more anxiety on the part of parents and students than any other activity; long afterward, many students recall the trauma they experienced with "the test" even though most districts now use multiple criteria. However, since we can only serve those we identify, we cannot simply wish the problem away. It behooves all involved to work together to make the process as effective and smooth as possible. This calls for an understanding of the roles and responsibilities of all parties.

ORCHESTRA CONDUCTOR The District Coordinator has multiple responsibilities including developing a timetable, arranging for necessary testing, developing and disseminating information to parents, site administrators and teachers.

DISTRICT COORDINATORS

The screening and identification process usually starts with the District Coordinator whose job includes developing a timetable and arranging for necessary testing, usually at a variety of sites and times. In some ways, the coordinator is the conductor of the orchestra. All participants must play their parts with the coordinator endeavoring to ensure harmony. Therefore, the coordinator has multiple responsibilities.

Dissemination of Information

Information to Parents

Information about the district's gifted program should be available to parents at all times. Be sure that you are the one who prepares the program description for the mailing that goes to all parents at the beginning of the school year. In addition, ask site principals to let you insert a general description in their school newsletters early in the year. If you have a pull-out or magnet program, be sure to disseminate information to parents at schools that have no on-site programs. Too often non-GATE schools never hear of the program because these schools don't want to lose their bright kids and therefore don't publicize the program.

In addition to general program descriptions, specific information about the screening and identification process should be made available to parents as well. Many districts find it more effective to mail this information than to send it home with students. Due to cost, this is usually mailed to a selected grade level(s) rather than to all parents every year. Frequently a checklist of characteristics of gifted children is attached, and parents are invited to nominate their children if they believe they fit the characteristics. Be sure that this information is available in the home languages of parents whenever possible.

A parent information night is another way to bring information to parents and provides a forum for parents to ask questions of clarification. Translators or a separate session for parents of English Language Learners is very valuable as well. Seek the assistance of your bilingual specialist to accomplish this.

Inservice for Site Administrators

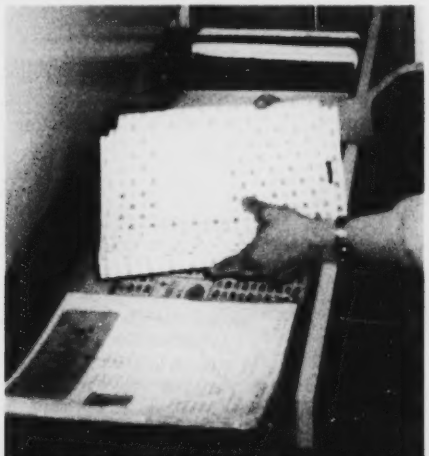
The site administrators are critical to the success of the overall program and must be in the loop at all times. Do not wait until it's time to collect referrals to make your first contact of the year with principals. Keep them informed of the year's goals and schedules. Also make sure you share all the latest research with them. They will probably not subscribe to or read whole journals on gifted education. You need to keep a library of books and journals for gifted education and pass on articles and other information pertinent to duties of principals. (Do the same for teachers and other support personnel.)

Be sure to request time on a principals' meeting agenda prior to the beginning of your screening and identification period. You want all of them to hear the same message and to give them an opportunity to ask questions.

Professional Training for Teachers and Support Staff

Professional training for teachers and support staff should be ongoing, but information prior to the beginning of the screening and identification period is essential. Teachers are usually the prime source for student nominations,

and they must see themselves as part of the total team. You may not change the procedure much from year to year, but teachers need refreshers. And of course, you will always have new teachers who have not been through the process before. Staff must receive training and information regarding the nomination process and the characteristics of gifted learners every year.



MAKING THE TEST SELECTION The coordinator is the key person investigating possible instruments and must be familiar with the great number and variety of tests available.

If you have site coordinators or liaisons, meet with them prior to dissemination of referral forms so they can take the information back to their schools. If your school system is small, ask for time on staff meeting agendas to bring the information directly to school sites.

Be sure to work with other special programs, particularly Bilingual Education and Special Education to ensure equity in access to your program. Students in these programs are often more difficult to identify as gifted than other students, and a team approach is most effective.

Preparation and Selection of Materials

Timelines

It is important to set up a timeline early in the school year for dissemination and collection of information, test dates, and reporting of results dates so that surprises do not upset the process. Keep in mind that school assemblies, field trip days, achievement testing, and a myriad of other activities must be considered at each school site. By working together to avoid conflicts in schedules, the process will go much more smoothly and you will have fewer "make-ups" to do. Make sure the timelines are distributed to all principals, teachers, and support staff who will be involved. And very important—make sure all school secretaries or office managers receive a copy. Principals often depend on them to keep track of school schedules.

Referral Forms

Referral forms need to be reviewed each year to make sure they reflect any changes you have incorporated into your process, as well as for making improvements in your method of collecting data. Have your advisory committee(s) go over the form with you early in the year to brainstorm possible improvements. Be sure the forms are available in the home languages of parents whenever possible. To ensure support and understanding from all parents, information and forms must be translated into the appropriate languages.

All staff who are potential nominators of children for screening and assessment must have access to the referral forms. Try to identify the key contact people at the various schools and make sure all information gets to them.

Test Instruments

While the final choice of the specific measuring instruments used to identify gifted students in your district may lie with high-level district authorities, the coordinator is the key person investigating possible instruments. Be sure that you are familiar with the great number and variety of measuring instruments available (see page 6 for a list of possibilities).

Many factors should be considered in making your selection including:

- Socioeconomic backgrounds of student population
- Home languages
- Ages of students being assessed
- Non-traditional as well as traditional measurements
- Other special needs students

Best practice and many states' regulations demand that information from multiple sources be used to assess each student. Research and experience indicate that a single test score for any given student is not adequate in determining whether or not he or she is gifted and eligible for your program.

Collection of Information/ Formal Assessment

Traditional Assessment

In many districts, cost factors have come to dictate the use of one or more group tests as part the assessment process. It is important that the best possible testing situations be arranged to allow students to demonstrate their true abilities. Time of day and facilities are major factors in this consideration. It is almost always best to test in the morning, and in a room that will have a minimum of distractions. It is also important that the measuring process be consistent among all district school sites.

Nontraditional Assessment

Nontraditional measurements can be more difficult to obtain since they usually require more labor and time than group testing. However, they may be the only way to fairly measure some of your difficult-to-identify students and must be part of your over-all process (see page 6 for a list of possible nontraditional instruments).

Scoring

It is the coordinator's responsibility to see that scoring of the various measuring instruments is completed in a timely manner and that all information is brought together at a central location where the committee determining eligibility will meet.

Placement Procedures

Formation of Committee to Determine Eligibility

It is highly desirable that a committee make eligibility decisions rather than a single individual. A three-person committee consisting of the GATE coordinator, a school psychologist, and a certificated teacher or counselor is common, and assures that a variety of perspectives are represented. It is also desirable that the committee meet periodically (not just once a year). If it is not possible for the committee to meet jointly, they may meet serially.

Notification to Parents

Parents need to receive notice of results of assessment in a timely manner. This should be done in writing and sent by mail. You will probably want to have several types of letters prepared:

- Student qualifies with no further assessment needed
- Further assessment is needed before a decision can be made
- Student does not qualify at this time but demonstrates considerable strengths and will be monitored during the coming school year for possible reassessment
- Student does not qualify and no further assessment is planned at this time.

It is important that your letters be clear and succinct; it will save you numerous telephone calls later. Be matter of fact rather than congratulatory in letters to parents of students who qualify. The goal is to provide students with the most appropriate educational services rather than a prize to be won. Be

IDENTIFICATION ACROSS THE NATION

IDENTIFICATION MANDATED

With 42 states reporting, 30 stated that identification of gifted students is a legal requirement in their states. They include:

Alaska	Kentucky	Pennsylvania
Alabama	Louisiana	North Carolina
Arizona	Minnesota	South Carolina
Arkansas	Mississippi	Tennessee
Florida	Montana	Texas
Georgia	Nebraska	Virginia
Idaho	New Jersey	Washington
Iowa	Ohio	Wisconsin
Illinois	Oklahoma	West Virginia
Kansas	Oregon	Wyoming

NUMBERS AND PERCENTAGES OF GIFTED STUDENTS

With 31 states reporting, a great range of numbers and percentages were indicated including the following:

State	Number of Gifted Students	% Total Student Enrollment
California	350,792	6.12
Colorado	95,653	13.9
Nevada	700	.0022
Oklahoma	88,785	14.27
Texas	313,142	8.00
Virginia	129,179	12.03

TYPES OF MEASUREMENTS

A variety of measures are used to identify students. With 41 states reporting, the break down is as follows:

Number of states using a measure	Type of measurement
25	Intelligence/ability/aptitude assessment
24	Academic achievement/performance assessment
17	Teacher/parent/student/peer nomination
10	Characteristics or behavioral checklists/observations
9	Grades/anecdotal records/student interest inventories/assessment of student motivation
29	Multiple criteria
5	Locally defined

Source: Council of State Directors of Programs for the Gifted, 1998-1999 State of the States Gifted and Talented Education Report.

sure to indicate the next step in the process and how parents can receive additional information or have questions answered. An information meeting for parents of newly identified students might be held one or more times during the school year depending on the assessment cycle.

Be sure to notify site principals, teachers, and support staff of results before letters go out to parents; they will then be in a better position to provide support or assistance in any necessary follow-up.

Student Needs

The best programs for gifted students provide a continuum of services rather than a single option. It is important that the needs of individual students be considered when options for placement are presented to them and their parents.

Formal Parent Permission

Almost all school systems require written parent permission to be on file before a child can participate in a special program. It is usually easiest to include the permission form in the mailing to parents of students who qualify. The majority of permissions will be returned quickly. You may need to make phone calls or request the assistance of site principals or teachers to obtain others.

You know your child is gifted when...

A sitter reads a story to your two-year old, with the words, "There was a blizzard outside, and it was snowing," and he comments, "That's redundant."

SITE PRINCIPALS

Site principals are the busiest people in the school system, and since the number of gifted students at any one school is usually a small percentage, the program often takes a backseat to other pressing concerns. But like everything else at the site, the leadership of the principal is critical to ensuring an efficient and effective process.

PROVIDING LEADERSHIP The principal's support is crucial. Providing staff development, arranging schedules and facilities for testing, and answering questions from parents are just a few responsibilities of the principal in the identification and testing process of gifted students.

Ongoing Professional Development

You are not generally responsible for preparing the actual materials or types of presentations needed for ongoing professional development at your school; usually the district GATE coordinator or site GATE coordinator will do that. But your support in the process is crucial. Making sure your staff knows that you consider such training to be important, and providing time and facilities for professional development are critical factors in making it a success.

Some of your staff may argue that they do not teach gifted students and therefore do not need such training. The fact of the matter is:

- All teachers, even special education teachers, teach gifted students at some time though the students may not yet have been identified
- The strategies that are effective for working with gifted children have considerable transfer to other situations. A teacher trained to teach gifted children will usually do a better job of teaching all students.
- All teachers and support staff must be trained to recognize gifted students in order to refer them for assessment and appropriate placement.

The mind-set that "gifted students can get it on their own" is still all too prevalent within schools and classrooms. As the leader of the school it is essential that you counter that prevailing attitude and set the tone with support for professional development at your site.

Arranging Schedules and Facilities

When formal testing is required, it is up to you to ensure the best possible environment for children to demonstrate their abilities. Sometimes this is very difficult. Many schools are already overcrowded and finding a room where testing can take place without interruption may not be easy.

Collection of Information and Referrals

If you have a GATE site coordinator or teacher liaison, you may wish to designate the collection of referral forms and parent permission for testing forms to that individual. Ultimately, however, you are

the one responsible for seeing that it is done in a timely and organized manner. This includes making sure that your staff is aware of and adheres to the deadline dates for submitting referrals and supporting information.

You or your designee should prepare a list of all referrals made by school staff and compare it to lists compiled by the district office. During this process students can so easily "fall through the cracks" and you must be diligent in making sure that it does not happen at your site. It is much easier to correct something at this point than have to arrange for make-ups later.

Fielding parent questions

Parents will have many questions for you, especially if the district office has not arranged for parent information sessions. Be sure that you are familiar with district procedures and guidelines so that misinformation is not disseminated. Again, it is much easier to correct misconceptions at this point than later in the process.

CLASSROOM TEACHERS

Professional development

You are the number one person when it comes to making referrals for student assessment for the gifted program. It is of paramount importance that you recognize the characteristics of gifted children. This means looking beyond the "teacher pleaser" and recommending students with unique responses to their school environment.

You need to be familiar, not only with the traditional checklists of positive traits of giftedness, but the behaviors which may mask giftedness. For example, underachievment and its causes may lead people to overlook individual students. You also need to be looking for students who are typically underrepresented in programs for gifted. This includes English language learners, learning disabled students, physically disabled, underachieving, and low socioeconomic students. If your district or site administrators are not providing the information you need to make informed recommendations, you must insist upon it.

No one at your school site would dream of teaching special education students without advanced training. Gifted students are just as different from the norm as are special education students. And yet, teachers are expected to teach advanced students without any additional training. In a recent survey conducted by the National Research Center on the Gifted and Talented (1999), 61% of elementary teachers reported they did not have a single hour of training to work with gifted students. As a professional, you must not accept this lack of training.

RECOGNIZING CHARACTERISTICS OF GIFTED CHILDREN Teachers must look for students who are underrepresented in gifted programs: English language learners, learning disabled, physically disabled, underachieving, and low socioeconomic students.

Screening and Nomination

Completing teacher referral forms is definitely time-consuming and one more thing for a busy teacher to do. Special education children have legal protection ensuring that they receive appropriate services, with mandates regarding how much time may elapse before assessments are completed and appropriate interventions made. Gifted children have special needs too, but there is often no legal requirement that these needs be met apart from a general requirement regarding all school children. If you don't make the referral, it's not likely to happen. It is as simple as that. And remember, having an opportunity to participate in a gifted program is not something a child earns through good behavior. It should not be considered a reward, but rather a response to the needs of the child.

Communicating with Parents

You are often the first line of communication when it comes to parent questions. They will often rely on your judgement when considering giving permission for testing. The better informed you are regarding the characteristics and needs of gifted children as well as district procedures and guidelines, the better able you will be to answer these questions.

Be careful not to make anticipatory statements to parents regarding outcomes. No matter how experienced you are, you can not be 100% accurate in predicting which of your students will become eligible for services. Telling parents, "Your child is a shoo-in," will set the stage for disappointment and

frustration if it does not come to pass. It is far better to explain to parents that assessment is part of a diagnostic procedure to determine what educational program is most appropriate for an individual child.

Preparing Students

"The test" is often remembered by students long afterward as an ordeal that was traumatizing. Testing of any kind often involves anxiety—just remember the last time you took one yourself—even as an adult. Testing for giftedness is often very mysterious to children because tests of intelligence are not ones they can "study for." They don't know what is coming and therefore feel uneasy. Your ability to discuss the testing process in a low key manner will be very helpful in easing their fears.

SCHOOL PSYCHOLOGISTS

Professional Development

Since you are probably the individual with the greatest training in assessment, you may be in a unique position to offer training rather than receive it. Frequently, however, school psychologists deal primarily with special education students and need to make an effort to stay abreast of developments in gifted education. If information is not readily available to you, request your district GATE coordinator to make sure you receive it through the district office.

Assessment

Gifted programs are probably the most underfunded in the school system, and therefore, most districts today utilize group testing rather than individual testing. It is just too costly to give each student a Stanford Binet or WISC III, even when those might be the most accurate means of assessment for some groups of children. Group tests are often administered by district coordinators or classroom teachers. You may only be called in for difficult cases where preliminary assessment has not qualified a student, but parent or professional advocates believe giftedness exists. Your training and the opportunity to work individually with a child should provide much greater accuracy in assessment.

INTERPRETING TEST RESULTS The school psychologist may be called in to administer an individual IQ test in difficult cases where preliminary assessment has not qualified a student. Explaining test results to parents is also a responsibility of the school psychologist.

You may also be asked to be part of the committee to review assessments and make recommendations regarding eligibility. Again, you have special training that can be very valuable in this process.

Parent Communication

If a child has been given an individual IQ test requiring a licensed professional to administer, you are the one who can best explain test results to parents. Teachers and coordinators can be expected to defer such explanations to you. If a child has a dual identification—both gifted and special education—for example, your judgement will be especially important in making recommendations regarding appropriate placement.

COUNSELORS

Professional Development

Like school psychologists, school counselors often spend the majority of their time assisting students with learning difficulties and have little time to devote to meeting the needs of gifted students. School counselors sometimes get caught up in the "gifted kids can make it on their own" syndrome also, or worse, "if you're so gifted, why can't you get your work done?" attitude. You need to stay abreast of developments in gifted education, insisting that district officials provide you with the necessary information. There are several good gifted education journals that will be useful to you, especially, *Understanding Our Gifted* by Open Space Communications, Inc.

Preparing students

If you are at an elementary school fortunate enough to have school counselors, you may well be designated by your principal to facilitate the assessment process at your school. Be sure to participate in inservice sessions regarding procedures so you will be comfortable in guiding students before and during the assessment process, as well as answering parent questions.

As with teachers and parents, it is important that you maintain a low key when discussing testing and the assessment process with students. The emphasis must be on finding the best possible school program for them, and assessment will help in that determination.

Assessment

If you are asked to administer the test instruments at your school, be sure you are thoroughly familiar with them just as you do when giving standardized achievement tests, etc. In order to maintain fairness

for all students, it is important that uniform and standard procedures be used at all school sites. Usually you will administer the tests and then bring or send them to the district office for processing. You may be requested to be a member of the committee that reviews individual assessment results and determines eligibility.

PARENTS

Become Knowledgeable

As your child's advocate, it's up to you to check out the GATE programs offered in your district. Begin by discussing GATE with your child's teacher. Is he familiar with the program? Does he think your child would be a good fit? Will he recommend your child and supply supporting documentation? Is GATE instruction available at your child's current school?

Next, contact the local GATE coordinator to learn about your district's setup. Are the classrooms made completely of GATE-identified students, or are they clustered or pull-out? (For a definition and discussion of these terms, please see We Request Your Permission: Testing for Gate in this issue.) At what grade does GATE start? At what grades is testing offered?

Talk With Your Child

Talk about the GATE program with your child. This is important: Does he or she want to be in it? Remember that this not about your ego or intelligence. Some eligible students opt out of GATE for a variety of very legitimate reasons: They don't want to leave their friends or their schools, and they may be uncomfortable with the gifted label. There's nothing wrong with encouraging them to participate. Just consider their opinions. Find out when testing will occur, and make sure your child rests and has a good breakfast. Avoid pressuring your child. Explain that you expect their best—just as you would on any effort.

TALKING WITH YOUR CHILD It's important for parents to find out if their child really wants to be in a GATE program—some students who qualify opt out of GATE for a variety of reasons. Listen to their opinions, discuss the pros and cons, and give them time to make a decision.

Deciding About Placement

Your child is eligible for GATE. What now? If GATE instruction is not offered at your child's current school, he or she may be able to move, space permitting. Discuss this option with your child. Visit the different schools where GATE is offered with your child and talk to GATE teachers, students, and parents. Ask what they like and don't like about the program.

Evaluate the benefits and challenges. For some kids, a GATE classroom is a perfect fit. They thrive on the fast-paced atmosphere and discover kindred spirits. Others find the pace too rapid, their classmates too geeky, and the atmosphere smothering. When examining a pull-out program, consider whether the part-time accelerated learning will make up for missing work in their regular classrooms.

Usually when a child has qualified for the GATE program, he or she remains eligible indefinitely. Check with district officials; you may elect to wait until a later grade before placing them in a GATE program.

If You Child Does Not "Pass" GATE Identification

If your child did not pass the test, there are still plenty of options. If you feel there has been a mistake, ask the GATE committee for a review. Remember, there will be another testing period. Ask about clustering programs that group bright kids together regardless of whether they've passed the test. Be a squeaky wheel and get the system to work for you—there is a place for your child.

Conclusion

Screening and identification of gifted children is a necessary process if we are to appropriately serve those students requiring advanced educational programs. If all participants are aware of their roles and responsibilities, the process can be relatively painless and harmonious.

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DEFINITIONS OF GIFTEDNESS

Identification of gifted children must be based upon our concept of what intelligence and giftedness are and how they are made manifest. We include here a variety of definitions over time and from several perspectives.

Marland Report (1971)
Gifted and talented children are those identified by professionally qualified persons who, by virtue of outstanding abilities, are capable of high performance. These are children who require differential educational programs and/or services beyond those provided by the regular school program in order to realize their contribution to self and the society.

Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas, singly or in combination:

- General intellectual ability
- Specific academic aptitude
- Creative or productive thinking
- Leadership ability
- Visual and performing arts
- Psychomotor ability

Report requested by the U.S. Congress and written by Sidney Marland, U.S. Commissioner of Education.

U.S. Department of Education, based on definition used in federal Javits Gifted and Talented Education Act (1993)
Children and youth with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others of their age, experience, or environment.

These children and youth exhibit high performance capability in intellectual, creative and/or artistic areas, possess an unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided by the schools.

Outstanding talents are present in children and youth from all cultural groups, across all economic strata, and in all areas of human endeavor (O'Connell, 1993, p. 3).

National Association for Gifted Children (Current)
There are many definitions for giftedness. They all have one element in common: A gifted person is someone who shows, or has the potential for showing, an exceptional level of performance in one or more areas of expression. Some of these abilities are very general and can affect a broad spectrum of the person's life, such as leadership skills or the ability to think creatively. Some are very specific talents and are only evident in particular circumstances, such as a

SELECTED STATE DEFINITIONS

TEXAS

"Gifted and talented student: means a child or youth who performs at or shows the potential for performing at a remarkably high level of accomplishment when compared to others of the same age, experience, or environment and who:

1) exhibits high performance, capability in an intellectual, creative, or artistic area;
2) possesses an unusual capacity for leadership; or
3) excels in a specific academic field.

COLORADO

"Gifted children" means those persons between five and twenty-one whose abilities, talents, and potential for accomplishment are so outstanding that they require special provisions to meet their educational needs.

MISSOURI

Section 162.675.RSMo., defines gifted children as "those children who exhibit precocious development of mental capacity and learning potential as determined by competent professional evaluation to the extent that continued educational growth and stimulation could best be served by an academic environment beyond that offered through a standard grade level curriculum."

ARKANSAS

Gifted and talented children and youth are those of high potential or ability whose learning characteristics and educational needs require qualitatively differentiated educational experiences and/or services. Possession of these talents and gifts, or the potential for their development, will be evidenced through an interaction of above average intellectual ability, task commitment and/or motivation, and creative ability.

Source: The 1998-1999 State of the States Gifted and Talented Education Report

special aptitude in mathematics, science, or music. The term giftedness provides a general reference to this spectrum of abilities without being specific or dependent on a single measure or index. It is generally recognized that approximately five percent of the student population, or three million children, in the United States are considered gifted.

INDIVIDUAL DEFINITIONS

Barbara Clark, State University of California, Los Angeles

Giftedness is a biologically rooted concept that serves as a label for a high level of intelligence and indicates an advanced and accelerated development of functions within the brain. Such development may express itself in high levels of cognitive, affective, physical sensing, and/or intuitive abilities, such as academic aptitude, insight and innovation, creative behavior, leadership, personal and/or interpersonal skill, or visual and performing arts.

Gifted individuals are those who perform, or who show promise of performing at high levels in any such areas and who, because of such advanced and accelerated development, require services or activities not ordinarily provided by the schools so that society can ensure the growth rather than the loss of their abilities (Clark, 1997, p. 26).

Joseph Renzulli, University of Connecticut, Storrs

Giftedness consists of an interaction among three basic clusters of human traits—these clusters being above average general abilities, high levels of task commitment, and high levels of creativity.

Gifted and talented children are those possessing or capable of development, this composite set of traits and applying them to any potentially valuable area of human performance. Children who manifest, or are capable of developing, an interaction among the three clusters require a wide variety of educational opportunities and services that are not ordinarily provided through regular instructional programs (Renzulli, 1979, p. 261).

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CALIFORNIA

Education Code

52201 Definitions

a) "Gifted and talented pupil," as used in this chapter, means a pupil enrolled in a public elementary or secondary school of this state who is identified as possessing demonstrated or potential abilities that give evidence of high performance capability as defined pursuant to Section 52202.

b) "Program" means an appropriately differentiated curriculum provided by a district for gifted and talented pupils which meets the standards established pursuant to this chapter, and also includes the identification of these pupils.

C) "Participating pupil" means a pupil identified as a gifted and talented pupil who takes part in a program for at least one semester of a school year.

52202 Defining abilities that evidence high performance capability

For purposes of this chapter, the demonstrated or potential abilities that give evidence of high performance capability shall be defined by each school district governing board in accordance with regulations established by the State Board of Education. Each district shall use one or more of the following categories in defining the capability: intellectual, creative, specific academic, or leadership ability; high achievement; performing and visual arts talent; or any other criterion that meets the standards set forth by the State Board of Education pursuant to Section 522-3. Each governing board shall also consider identifying as gifted or talented any pupil who has transferred from a district in which he or she was identified as a gifted and talented pupil.

Two Heads Are Better Than One

One District's Process for Increasing the Identification of Gifted English Learners

BY JENNIFER WHITLOCK ROBLES

Just as fluency in two languages enhances cognitive flexibility for bilingual students, the collaboration between two departments, GATE and Bilingual Education, has increased the Ventura Unified School District's (VUSD) ability to identify and serve gifted English Learners.

PUTTING THEIR HEADS TOGETHER Ventura's Parnelli Sharp, left, GATE Specialist and Jennifer Robles, Bilingual Program Specialist work together to improve identification and programs for gifted English Learners.

This article describes the process used in VUSD in hopes that others may be encouraged to expand their identification processes through a similar collaborative effort. This process is used at grades 2 through 8.

Before proceeding, a brief description of terminology, program models, current research, and demographics may be helpful to readers who do not specialize in educational programs for English learners.

Terminology

- English Learners (EL) are students who are learning English as their second language. They are currently referred to as EL or English Language Learners (ELL). They were formerly referred to as Limited English Proficient (LEP).
- Primary Language (L1) is the language the student first learned to speak at home. It is also sometimes called native language or home language.

Research Findings

Bilingual educators are frequently asked how long it takes for English Learners to attain English proficiency. A summary of findings presented by the UC Linguistic Minority Research Institute in Fall, 1999 reports that even in two California districts that are considered the most successful in teaching English to LEP students, English oral proficiency takes 3 to 5 years to develop, and academic English proficiency (reading and writing) can take 4 to 7 years.

Programs

Proposition 227 has changed the face of bilingual education in California. Some districts have completely redesigned programs with greater emphasis on English. These programs are often called Sheltered Immersion Programs. Other districts have continued to offer students instruction in their primary language along with daily English Language Development (ELD) instruction. These alternative bilingual programs require parents to personally submit annual waiver applications for 227 compliance. VUSD is a district that offers both Sheltered Immersion Programs and Transitional Bilingual Education depending on parents' wishes and schools' capacities.

Demographics

In Spring, 1998, the following numbers of English Learners and GATE students were reported:

English Language Learners K-12

- California: 1,406,166
- Ventura County: 27,033
- VUSD: 2,062 or 12% of total enrollment

Gifted and Talented Education Students

- California: 370,000
- VUSD: 1,317
- VUSD GATE Students whose home language is not English-only: 125 or 9.5% of total

Problem or Priority?

The VUSD procedures for identifying gifted English Learners were initiated because very few English Learners were participating in our GATE program. Valentina Kloosterman at the University of Connecticut refers to this underrepresentation of linguistically and culturally diverse children in gifted programs as a "worldwide problem." In Ventura, we have turned this problem into a priority and have begun to meet the challenge.

VUSD Procedures for Identifying Gifted English Learners

The key to our process is collaboration between staff from the VUSD Bilingual and GATE Education Programs. District-level coordinators from both programs have developed a routine for involving teachers in the early stages of the process and then sharing expertise from their specific programs to evaluate and place potential gifted English Learners using multiple criteria. Both programs benefit greatly from this partnership. Key components of our evolving process follow.

Assessment Team, Shared Beliefs and Goals

The GATE and Bilingual Program Coordinators are the assessment team in VUSD. We share the belief that gifted English Learners are an at-risk group for many reasons. They demonstrate the special learning needs common to many gifted students. In addition they are faced with cultural, linguistic, and often poverty barriers that must be overcome. Many times

they are the first in their family to attend U.S. Schools. We find that Latino girls have additional barriers due to gender-based traditions and expectations. We also share the common goal of not only identifying greater numbers of gifted English Learners, but providing them with an appropriate educational experience which respects their linguistic heritage and prepares them to become productive citizens and critical thinkers. It is the role of the assessment team to implement the identification process, train teachers and parents in identification procedures, review individual student referrals, recommend placement, and monitor student performance.

Timeline of Identification Procedures

The routine that has been developed follows an annual timeline that begins with teachers' observations and referrals and culminates in student placement recommendations. The key elements are described below with additional information on the elements that make this process more effective in identifying gifted English Learners. These modifications are noted in italics.

1. Teacher Observation of Student Characteristics

In October, teachers are asked to complete GATE referral and Teacher Observation Forms for each potential GATE student. This form includes general student information, atypical testing consideration, *English Language Learner Consideration*, Student Behavior Questionnaire and Teacher Rating, and Teacher Comments. Based on this information, a total score is given to each candidate.

English Language Learner Consideration

One of the typical characteristics among gifted English Language Learners is that they rapidly acquire English language skills once exposed to the language and given an opportunity to use it expressively. In VUSD we have developed a rating scale to assign points to EL's who have shown rapid acquisition of English. (See Sidebar) We rate their growth in English skills over time by comparing the results from two tests: (1) their initial English language assessment routinely conducted by the bilingual education program using the IDEA Proficiency Test (IPT), and (2) current IPT assessment conducted by each school's language assessor. Depending on the speed of acquisition, more or less points are assigned. Students who go from non-English speaking to fluent in one year are automatically given the full points possible.

2. Ability Test Scores

In January all English Learners at grade 2 in VUSD transitional bilingual classes at five schools are given the Matrix Analogies Test (MAT) Short Form. Bilingual teachers administer this blanket screening to uncover any potential GATE candidates who may have been missed in the referral process.

In February all GATE candidates at grades 2 and 3 and English Learner and atypical candidates at grades 4–8 are given the Raven's Progressive Matrices. Other students at grades 4–8 take the Otis Lennon Test of School Ability.

3. Achievement Test Scores

Each spring, VUSD participates in California's STAR testing program. All students take the Stanford 9 in English unless a parental waiver has been submitted or modifications are documented in a Special Education Individual Education Plan. We are cautious when interpreting SAT9 scores for English Learners because we know that this test was normed on a group that included few English Learners and therefore does not provide valid results. *English Learners who are recent arrivals or who are learning to read in Spanish take the Spanish Assessment of Basic Education (SABE2). It is essential that the language of assessment be consistent with the language of instruction if*

See IDENTIFICATION OF GIFTED EL, 41

RAPID ENGLISH ACQUISITION: An English Language Learner Consideration

Ventura Unified School District requires a minimum of three measures for each student considered for its GATE program. Each measure is converted to a weighted scale of 1–10 and considered by the assessment team in determining eligibility of students.

One of its accepted measures was created by the district and is referred to as Rapid English Acquisition. Specifics of this measure are as follows:

- We use the IDEA Proficiency Test I (IPTI) to assess students' oral English language proficiency at grades K-6. On this test the range is from A-F with F indicating fluency.
- There is some flexibility in our rating scale. When we come across a new scenario, the assessment team assigns points and adds it to the list.

10 points: Oral English fluency in one year (from Non-English Speaking to Fluent)

9 points: Three alternatives:

- Oral fluency at third grade, starting from Non-English Speaking
- Score of E or F on IPT for second graders
- Student who moves 4 levels over 2 years

7–8 points: Progress, not fluency at third grade, starting at NES

7–8 points: Limited English Speaker to FES by third grade

Nontraditional Screening

A Process to Uncover the Potential of Students from Underrepresented Populations

BY SANDRA KAPLAN, EMMA RODRIGUEZ, AND VICTORIA SIEGEL

Most discussions regarding the identification of gifted students focus on concern about the instruments and procedures used by the district, school, or classroom officials. However, the literature clearly states that the identification process must be sensitive to the economic, linguistic, social, and cultural backgrounds of children being assessed. Screening is a preface to testing, and thus, it is the key feature in determining which and how many students will be selected for further assessment. The traditional concept of screening has been used to narrow the field of students who will be designated for testing. The goal is to decrease the numbers of students who are tested formally due to time and fiscal constraints, as well as the psychological issues of having students experience unnecessary testing.

The screening process can also be used as a method to enlarge the pool of students referred for testing. It can ensure that students who might otherwise be overlooked or denied access to testing, may be recognized for their potential and be given the opportunity to be assessed further. It is through the development and implementation of a nontraditional screening process that more students from underrepresented populations can be (and have been) provided the opportunity to display their potential, and successfully come through the identification process.

One approach to a nontraditional screening process is to develop a process that serves as a showcase for the interests and abilities of students. This approach is based on a set of assumptions and features.

Screening Assumptions

Following are the assumptions for a screening process appropriate for identifying students from underrepresented populations:

1. The screening process uses curriculum or curricular activities rather than instruments to assess the interests and abilities of students.
2. The screening process engages students in curricular activities that uncover rather than measure abilities.
3. The screening process yields information about the student's learning behaviors rather than numerical indices.
4. The screening process is perceived to be a means to an end rather than an end in itself.

Screening Features

The following are the features for a screening process appropriate for identifying students from underrepresented populations:

1. Tasks are related to verbal abilities and allow a child to express himself or herself in a meaningful way using clear, precise, and colorful (primary) language. Discussions of open-ended questions and making predictions from detailed action pictures are two examples of this type of task.
2. Tasks are related to a child's questioning skills and problem-solving techniques. A game called "Guess What's in the Bag!" is similar to "20 Questions" and requires the student to display classification, categorization, and analysis skills in questioning in order to guess what object is inside a bag.
3. Tasks are related to creativity. Pattern blocks and a "Squiggle" (creating drawings out of an abstract line) measure original and varied responses.

The following scenarios suggest that a change in the screening process changes the opportunity for students to be included in GATE programs.

Scenario 1

Like many GATE programs, the screening tool was the standardized test scores received each September after the state and district testing was completed in May. A committee of educators and administrators surveyed the printout data and selected from the data those students who had stanines 7, 8, or 9. Tishandra and Carlos were respectively at the 5th and 6th stanines. They were not considered as candidates for further assessment or testing.

Scenario 2

Many GATE programs have used the conventional behavioral checklist to determine which students manifest the typical characteristics of giftedness. Tishandra and Carlos have been overlooked by these questionnaires. Both students were not recognized as displaying these traits: "a wealth of information in a specific subject," "sophisticated vocabulary," or "wide range of interests and experiences." Using this standard set of gifted behaviors as benchmarks to screen potential, summarily discounts these two students who are reticent to verbalize, have limited out-of-school experiences, and display relatively average academic performance.

Scenario 3

Several GATE programs currently use portfolio assessments as a screening device for testing. Tishandra's portfolio is laden with examples of incomplete but quality work. Carlos' portfolio is replete with work from his favorite subject—math. There are few examples in his portfolio of good work

from any other subject area. In both cases, the committee assessing their portfolios against a rubric did not view their work as meriting further assessment or testing enroute to identification.

Scenario 4

The GATE program's administrators decided to change the screening process. They designed a set of curricular activities and placed them in centers to stimulate the students' display of yet uncovered potential through interaction with the materials. Tishandra played the game, "Pick and Tell" at the verbalization center. She chose a card with a face on it and spent her time describing the feelings expressed in the photo with elaborate details. Her verbal skills singled out her potential. Carlos displayed unusual abilities to respond to the "Guess What's in the Bag" activity. He asked many and unusual questions which identified his potential for problem-solving techniques. Both students were referred for testing or further assessment.

A screening process that is perceived as an avenue rather than as a barrier to becoming identified as gifted ultimately facilitates the inclusion rather than exclusion of students as gifted. Selecting newer instruments is insufficient. The screening process should guarantee that there are more rather than less students referred for testing for giftedness. ■

SANDRA KAPLAN, Ed.D, is Clinical Professor at the University of Southern California. She is the immediate past president of the National Association for Gifted Children, and the chair of Special Projects for the California Association for the Gifted.

EMMA RODRIGUEZ is the Administrator for the Roosevelt Cluster, Los Angeles Unified School District.

VICTORIA SIEGEL is the Administrative Specialist at Roosevelt Cluster, Los Angeles Unified School District.

Science and Math for Girls

Books About Women Open Doors to New Careers

For Judith Love Cohen, math and science were naturals. While her father encouraged her, the traditionalists did not, suggesting more feminine pursuits—like finishing school. Fortunately for the space program and astronomers everywhere, Cohen stuck to her passion. In *You Can Be A Woman Engineer*, she tells how a young girl who never heard of female engineers grew up to lead a team of engineers designing NASA's Hubble Space Telescope.

That was the first in the series of books and CD-ROMs with titles like *You Can Be A Woman Astronomer, You Can be A Woman Marine Biologist, You Can Be A Woman Architect*, and so on. Cohen and husband David Katz, who provides the exuberant color illustrations, formed the publishing company Cascade Pass to bring the stories of women in these nontraditional careers to the attention of developing young minds of both genders. Parent Topics Editor Jennifer E. Beaver talked to Cohen and Katz about their past experiences and future expectations—and the role parents play in both encouraging their girls as well as limiting their horizons.

JEB: What were the defining moments that put you on a nontraditional career path?

Cohen: I looked around my junior high intermediate algebra class and realized that I was the only girl. I hadn't noticed before because the teacher was a woman. So I figured I could be a math teacher.

In college, my boyfriend was studying engineering, and I did his homework. I was a math major, but I liked the idea of solving real problems. He dragged me to the guidance counselor and I changed my major to engineering. I described that in *You Can Be a Woman Engineer.*

JEB: Do you think it's still considered unfeminine to be scientific? Do you think this continues to be a barrier for girls who are interested in science and math?

Cohen: I think it's still uncool to be smart, let alone scientific or involved in math or technology.

JEB: What can we do to change that perception?

Cohen: Early exposure is very important. My father started teaching me math when I was seven and eight. By the time I was in junior high school, I already knew I was good at it. What I didn't realize was that other girls didn't think they were.

JEB: What can parents do to help?

Cohen: One mother brought her 12-year-old daughter to me; she was concerned because she didn't want her to lose interest in math and science. What I said to her is less important than the fact that her mother cared. If you show an interest in what your kids are doing and are willing to spend some time taking them places or buying them books, they get a

positive message.

It's also important that girls understand that they can participate—not just watch.

Katz: When we teach the You Can Be a Woman Engineer workshop to girls, the first problem is that they don't understand that engineering can be fun. Now, you start telling them that as engineers, they can design a multimedia game or a robot that can do their homework—and they suddenly perk up.

JEB: How are schools using your books and curriculum?

Cohen: We recently did a workshop in Norco, Riverside County. It was a very large group so we couldn't do hands-on activities where everybody stands around a table and mixes stuff. Instead, the kids wrote questions after reading the book and we discussed them.

Katz: Our books are often used in conjunction with others as part of a curriculum unit, on oceanography for example. One way they add particular value is that they all deal with real life experiences.

JEB: Your books and CD-ROMs are targeted at girls. What do boys think of them?

Cohen: Boys are just as interested in games about sharks, identifying different species, or building a rocket ship. And the boys would usually ask someone to buy the CD-ROMs for them.

Katz: We try to make things nonstereotypical.

JEB: Do you think people recognize that girls need to be encouraged to pursue scientific and mathematical careers?

Katz: Many people say that there is no problem. Others see a need for exposure. A huge amount of our books have been bought by parents because they want their girls to do as well as the boys.

JEB: What can teachers do to help?

Katz: Have women come in and share what they do. There are at least 50,000 women in science careers as professors. Many feel that they should put their energy at the university level. That's never going to change anything—that's just going to perpetuate what we already have in the system. Women professionals should come to elementary, middle, and high schools and talk about their careers—and we'll see a huge, huge difference in the next generation.

JEB: How has the perception changed over the years?

Katz: *You Could Be a Woman Engineer* was written about 10 years ago. When I looked up the topic in Career Series, there were no engineering books listed. Now there are at least five or six companies that put engineers in their books.

Cohen: Sports has given us a wonderful model. After Affirmative Action Act in 1974, they passed Title IX, which says that girls should have the same access to school sports funding as boys. Within one generation—only 25 years—we have women winning the Olympics, we have women in professional sports. A lot of that was because companies like Foot Locker and Nike recognized that 50 percent of the potential customer base didn't buy athletic shoes because they weren't into sports; girls represented a tremendous untapped market.

JEB: So now the corporate world and the government are working toward a common goal?

Cohen: Unfortunately, nobody in the corporate world has seen that you can do the same thing with technology.

JEB: That's surprising. The combination of computers, the Internet and girls seems like a winner.

Cohen: That's right. Mattel sold 500,000 CD-ROMS the year it brought out the Barbie CD-ROM, and the number of new computer sales at Christmas almost equaled that. People with daughters went out and bought computers because they felt that finally there was something for them.

JEB: Why don't you think that technology for girls has caught on?

Katz: One problem is that no one is marketing science and technology to girls—they're marketing lipstick, eye shadow, clothes, underwear. All of those things are nice and nobody is saying that they shouldn't do it. Even in the software that sells for girls, which do you think sells the most? A CD-ROM that deals with science or a CD-ROM that deals with...

Cohen: Dress design.

Katz: Hair design, lipsticks, eye shadow or whatever. That comes from the parents.

Resources

Log on to www.cascadepass.com to find out about all the company's publications. Check out the special parent's section to learn ways to encourage your girls in science and technology. And don't hesitate to e-mail Cohen and Katz with your questions—they welcome contact. ■

Computers May Perpetuate Career Stereotypes

According to a recent study by the American Association of University Women (AAUW) Education Foundation, girls are more likely to take clerical and data-entry computer classes while boys program and problem-solve. In addition, few girls take advanced computer science and computer graphics classes—prerequisites for 21st century careers like biotechnology. One reason: Girls don't encounter role models in computer games. If this tech gap continues, women will continue to be rare in pivotal roles in science and technology. For more information about this study and other issues affecting career choices for girls, check out the AAUW website at www.aauw.org.

CONTEXTS FOR PROMISE:
Noteworthy Practices and Innovations in the Identification of Gifted Students

By Carolyn Callahan, Carol A. Tomlinson, & Paula M. Pizzat
(1994) National Research Center on the Gifted and Talented
paperback, $11.00, 208 pp.
ISBN: 8049822849

REVIEWED BY MARY NAVARRO

This collection of case studies summarizes the action research results of five participating universities of the National Research Center on the Gifted and Talented (NRC/GT) which was funded by the Jacob K. Javits Act Program.

This monograph of research was based upon common needs and concerns which include:

- Clarify and and reach consensus in defining giftedness based upon theories of intelligence
- Challenge identification practices, policies and tools
- Collect data focused on student learning needs rather than solely on student identification
- Present issues of equality in under representation of minority populations: socio economic, limited English speaking and handicapped
- Identify exemplary modes of authentic assessment over time

As educators face the ever increasing challenges of diverse populations, school reform, and public criticism, this monograph provides insights of achievement across a wide variety of goals as practitioners share experience and expertise. It is always reassuring to have research confirm what we know to be true of our experience, our best practice, and intuition. The importance of promoting an inclusive philosophy is always a challenge but is validated in these five case studies. The cases outlined respond to the need for broader conception of assessment not as an end onto itself but as a means to improve instruction through continuous staff development. Training can be used to cultivate learning environments and nurture giftedness using culturally appropriate procedures based on ethnic and historical heritage. The focus on systematic and continuous attention to student performance over time will mesh identification procedures with teaching practices. Thus early and ongoing authentic assessment will build academic confidence in both minority and under served gifted students.

The collaborative research used in the studies focuses on authentic assessment for the collection of data over time. The assessments are linked to the specific needs of students across a wide variety of disciplines among traditionally under served populations. A variety of viewpoints are presented representing university classroom practitioners, parents, and students. Researchers looked at patterns linked to student performance which assist them to present innovative strategies for identification and programming. The development of new philosophies of inclusiveness became an end result as well as the view that the collection and use of educationally relevant data will enhance the education of all children.

This publication will be most useful for the practitioner who is looking for ways to improve the screening and identification of gifted students and gain new insights and understandings to keep current with the changing philosophies of identifying giftedness. For specific details about the various projects, see the abstracts below.

MARY NAVARRO, is a GATE Coordinator at Eastside Union High School District in San Jose, CA

IDENTIFYING GIFTED STUDENTS: Abstracts of Practices complied from *Contexts for Promise: Noteworthy Practices and Innovations in the Identification of Gifted Students*

As educators seek ways to best serve the needs of a changing society of students, increase student achievement, and implement the exploding research on the brain and how it learns, the demands for keeping current on the identification of giftedness might well fall through the cracks. The National Center for Gifted and Talented shares its findings from universities around the country in promising practices for screening, identification, and programming. Abstracts from the project listed here will give you an opportunity to explore some identification and programming possibilities which may enhance or radically change the method used in your district in the search for gifted children and ways to serve their needs.

Project STREAM: Support, Training and Resources for Educating Able Minorities - Donna Rae Clasen, University of Wisconsin-Whitewater
Three Wisconsin universities and six school districts

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collaborated to focus on improving identification and programming for highly able minority students. The process used focuses on multiple data sources of traditional and non-traditional assessments. The non-traditional approaches used were an art task, contextual problem solving, and Opportunities for Revealing Concealed Abilities (ORCA). Academic and non-academic data are used to develop student profiles and are also used for programming recommendations. Eight factors critical to the success of the program have been identified and are enumerated.

Early Assessment for Exceptional Potential in Young Minority and/or Economically Disadvantaged Students - Beverly D. Shaklee, Nancy Barbour, Richard Ambrose, Jane Roher, and Joanne R. Whitmore, Kent State University, and Karen J. Viechnicki, Ohio University

Computer-aided technology was foremost in the development of this model. Teams of primary classroom teachers and administrators determined behavioral attributes of observable exceptional potential during demonstration teaching in primary science and social studies lessons. Videotaped samples were collected and analyzed using ViDATA (Zuckerman,1990) to identify representative behaviors. Computer assisted training tapes were produced for teacher inservice training. A Portfolio Assessment process, using methods of observational strategies, focusing on eighteen primary identifiers, is employed for each child in the class to determine a profile of student strengths.

A Model Program for Identifying Young Underserved Gifted Students - Waveline T. Starnes, Montgomery County Schools, Maryland

Multilayered identification practices for this early childhood program include a standard multiple criteria gifted and talented selection process; a specialized diagnostic battery of instruments focused on critical and creative thinking; an identification process for multiple intelligences, as described by Howard Gardner of Harvard University; and identification through teaching. This process of filtering and assessing in the classroom occurs in small group and large group instruction. Checklists and portfolios are used to record teacher observations and student work. Included are initial findings from tests and checklists administered in the project.

The Full Potential Program for Underserved African American Students - Nancy Amuleru-Marshall, Thelma Mumfore-Glover, and Sharon Jones, Atlanta Public Schools

This schoolwide program model is based on a commitment to cultivate environments which will nurture the development of underserved African American gifted students. In Atlanta the identification process developed to locate giftedness incorporates the Optimal Performer Locator for Teachers and the Optimal Performer Locator for Parents. Two other assessments designed specifically to reflect African American cultural expressions supplement these checklists in the identification process. The summary of the Full Potential Program also includes descriptions of curricular modification, teacher education, and family training aspects of the program.

Spotting Talent Early in Minority Students: Projects STEMS in Howard County, Maryland - Paula M. Pizzat, University of Virginia

The STEMS (Spotting Talent Early in Minority Students) program was developed to supplement traditional assessment for gifted identification. It was designed to enable educators to locate gifted minority students in kindergarten through second grade. The model reflects the county-wide philosophy of inclusion and represents a commitment to incorporate non-traditional measures as a means to identify all students who exhibit gifted behaviors. Teachers are trained to observe characteristics among children from culturally diverse, low socioeconomic, or underserved populations by using specialized curricular activities designed to elicit manifestations of giftedness.

Urban Scholars: Access to Excellence for Students and Schools - Joan Becker, University of Massachusetts at Boston

The Urban Scholars Program provides a rigorous academic program for talented urban youth from disadvantaged backgrounds. One strategy used to identify Boston public school students is an interview. Other instruments designed to recognize talent include an essay rating scale and a checklist of traits used by teachers to nominate students who demonstrate behaviors characteristic of gifted potential. The curricular component of the Urban Scholars project is also described.

The Search for Talent: New Methods for Assessing Student Strengths - Evelyn Levsky Hiatt, Texas Education Agency

The model for assessing gifted potential in elementary level students from underrepresented populations includes nontraditional measures developed by the Texas Education Agency. The two assessments integrated into the instructional programs of the six diverse districts are the Texas Student Portfolio (TSP) and the Activity Placemats (Mats). These identification processes highlight talent searching through teacher nomination and the use of multiple criteria. The TSP described in this chapter focuses on behaviors associated with high performance rather than on discipline specific skills. Such practices yield information used in the instructional programs of gifted students from multicultural backgrounds.

Talent Beyond Words: Identifying and Developing Potential Through Music and Dance in Economically Disadvantaged, Bilingual and Handicapped Children - Barry Oreck, The ArtsConnection and Susan Baum,

College of New Rochelle, New York
New processes to identify and train students with potential talent in music and dance are the focus of ArtsConnection's Talent Beyond Words. A multifaceted, multicultural curriculum provides a setting for identifying a wide range of creative and expressive talents in this project. The observational identification model, based on the theory of creative/productive accomplishments, is designed to be adapted to various artistic styles and techniques. Two checklists have been developed, one to evaluate performance in music and one to assess performance in dance. Descriptions of the comprehensive arts program and the integration of these new identification procedures are included.

The Twice-Exceptional Project: Identifying and Serving Gifted/Handicapped Learners - M. Elizabeth Nielsen, University of New Mexico, and Ann Elizabeth Hammond and L. Dennis Higgins, Albuquerque Public Schools
University of New Mexico's Twice-Exceptional Child Project was designed to identify and serve elementary and middle school aged gifted children with learning problems. To address the unique needs of gifted-handicapped students, school and university educators involved in the collaborative project have produced a model to screen and identify gifted/handicapped students. Also included is an overview of the creation of both school-based programs and differentiated curricula for educating learners with both gifted potential and problems with learning, behavior and/or communication which characterize them as twice-exceptional.

The Menasha Joint School District Gifted Program: Matching Identification and Curriculum - Scott L. Hunsaker, University of Georgia
Matching programming to identification is based on a broad definition of giftedness determined through the use of a multiple criteria system that seeks to identify both the area and degree of giftedness in each student. Areas served include intellect, academics, creativity, leadership, and visual and performing arts. A special instrument for non-conforming students provides assessment for students not typically nominated by teachers. Programming in each area and at various levels is then provided based on the student's particular assessment profile to include curricular, guidance, community, and co-curricular activities. The individual student is the program focus.

Coordinating Instruments with Identification in Bayonne, New Jersey - Paula M. Pizzat, University of Virginia
A set of instruments designed to locate strengths across several facets of giftedness has been developed for a public school magnet program. The instruments are a part of a process designed to identify students, content knowledge, performance abilities, and attitudes. The ultimate purpose of the identification process has been to match the goals of the programs at the magnet school to the specific identification components. A second model offers guidelines and resources for teachers to identify high ability learners in the regular classroom.

Ordering Information: This publication is provided at cost from the National Research Center on the Gifted and Talented at the University of Virginia. To order, send a check made payable to the University of Virginia for $11.00 to The National Research Center on the Gifted and Talented, University of Virginia, Curry School of Education, 405 Emmet Street, Room 263, Ruffner Hall, Charlottesville, VA 22903.

You know your child is gifted when...

YOUR TWO-YEAR-OLD ARRANGES her soup vegetables on the high chair tray by color and type.

YOU HEAR YOUR FIVE-YEAR-OLD CRYING softly in her bed and when you inquire what is wrong, she tells you that she is worried that when she grows up and is doing genetic engineering to make a unicorn she will accidentally mix the DNA wrong and come out with a Narwhal with a horse's body or something equally strange.

YOUR TEENAGE DAUGHTER PREFERS subscriptions to *Discover* and *Omni* instead of *Seventeen*.

YOUR SEVEN-YEAR-OLD LETS YOU WIN a game of chess once in a while so you won't feel so bad.

YOUR FOUR-YEAR-OLD EXPLAINS that she can't go to sleep because her brain is running and running and running, and she can't turn it off.

Identification of Giftedness in Mexican Youth

BY JANET SAENZ

Identification of above average intellectual potential in children of Hispanic origin continues to puzzle educators in many countries. In the United States, the percentage of Latinos admitted to GATE programs is considerably lower than their proportion of student enrollment overall.

Mexico, a country whose diverse heritage stems from both indigenous and European cultures, is the first Latin American country to implement a program for gifted and talented students in a public school system. In 1985, the Ministry of Education, after examining prototypical programs in other countries, initiated a pilot program for gifted and talented youth: Proyecto para Niños con Capacidades y Aptitudes Sobresalientes or Project CAS: Project for children with above average Capacities and Aptitudes is a response to the concern of many Mexican parents and professional educators who recognize that Mexican children from all economic levels need assistance to develop their full intellectual potential in order to become successful adults and contributors to society.

Project CAS has now been in existence for fifteen years with varying degrees of development in many of the 32 states of the country. In some areas, the program has languished or died due to lack of support for the training of regular and special education teachers, as well as the lack of inclusion of parents in the training, planning, and implementation processes. In other states, educational integration models (mainstreaming) have been implemented and little or no attention has been given to the gifted students.

However, more than a third of the states have continued to explore, develop, evaluate, and modify educational models for gifted and talented students in public schools. Although programs for gifted and talented children are still a novelty to most Mexicans, evidence exists that pre-Hispanic cultures such as the Chichimecas, Mayans, Mixtecs, Zapotecs, Tarascans, and Aztecs actually honored their citizens who were artistically creative, as well as those with above average intelligence, by building special training facilities for these individuals (Morales, 1989). Research has revealed that the Mayan and Aztec cultures were highly developed civilizations having advanced knowledge in mathematical and scientific areas.

Joaquin Galarza, a well known anthropologist, discovered that the Aztec culture had a highly developed system of recording information. Scribesmen were chosen at a young age, when they demonstrated high artistic promise to learn and then develop the writing/painting procedure (called codices) to record information, instructions, and observations which were subsequently sent to all communities of the Aztec Empire (Mozcarella, 1989). This evidence depicts an early awareness of the giftedness present in some children and youth of the pre-Hispanic civilizations.

During the initial stage of Mexico's first programs for education of the gifted (1985-1989), students were selected on the basis of grades and nominations from regular teachers, CAS teachers and parents. Questionnaires from the Schoolwide Enrichment Model (Renzulli, 1977), and other U.S. GATE programs were translated and applied. However, many state public school systems have not been satisfied and have consulted with educators in Spain, California, Texas, and Arizona as well as with the author for additional ways of discovering the hidden potential in each child. Most states are in agreement that imported intelligence tests are not valid since they were developed in other cultures, languages, social-economic levels and almost one hundred years ago! The profile of today's Mexican child is very different.

In the last three years, the author has been contracted as a consultant to the state of Nueva Leon to develop a program for the 2000 elementary schools in the state. Principals and regular classroom teachers are being trained to "fine tune" their observational skills and to look closely at each student. Several questionnaires have been developed for use by teachers and students: an interest inventory based on the Interest-a Lyzer (Renzulli) and a short questionnaire based on the Multiple Intelligence theories of Howard Gardner (1985). This last form concentrates on the eight intelligences; students in grades 3–6 fill out their own

checklist and total their strengths in each area.

In addition to these inventories, teachers have implemented the portfolio approach; they are collecting the best examples of each student's work during the semester and keeping them in a folder. Since few public elementary schools have more than 2–3 computers, teachers are collecting examples of students' original works on paper by making photocopies of original stories, poetry, reports, designs of inventions, drawings, musical compositions, plays, scientific projects, and other creative products. Only students and teachers participate in the selection process since many parents are unable to attend orientation sessions and participate in the selection process.

Teachers and students are highly motivated by the initial training sessions which have focussed on research by Marian Diamond, Barbara Clark, Joseph Renzulli, and Howard Gardner. Students want to know what they are good at doing. Teachers have been learning how to offer a more stimulating environment by making portable interest centers, developing Mind Maps, and other strategies to develop a richer learning environment for each student. This program is being monitored and documented by the offices of the Ministry of Eduction, Nuevo Leon, and will hopefully

LANGUAGES SPOKEN IN MEXICO

U.S. Educators should know that in addition to Spanish, there are 62 native languages spoken in Mexico. A Spanish translator may not be helpful to the immigrant child who speaks only Mixteco. Bilingual and GATE specialists need to work together to identify and serve gifted immigrant children.

Rank	Language	People Speaking as of 1997	Rank	Language	People Speaking as of 1990
1	Nahuatl	2,563,000	32	Cuicateco	24,000
2	Maya	1,490,000	33	Mame	24,000
3	Zapoteco	785,000	34	Huave	23,000
4	Mixteco	764,000	35	Tepehua	17,000
5	Otomi	566,000	36	Pame	14,000
6	Tzeltal	547,000	37	Chontal de Oaxaca	13,000
7	Tzotzil	514,000	38	Chuj	3,900
8	Totonaca	410,000	39	Chichimeca	3,100
9	Mazateco	339,000	40	Guarijio	3,000
10	Chol	274,000	41	Matlazinca	1,800
11	Mazahua	254,000	42	Kekchi	1,700
12	Huasteco	247,000	43	Chocholteca	1,600
13	Chinanteco	224,000	44	Pima	1,600
14	Purepecha	204,000	45	Jacalteco	1,300
15	Mixe	188,000	46	Ocuilteco	1,100
16	Tlapaneco	146,000	47	Seri	910
17	Tarahumara	122,000	48	Quiche	640
18	Zoque	88,000	49	Ixcateco	620
19	Mayo	78,000	50	Cakchiquel	610
20	Tojolabal	74,000	51	Kikapu	580
21	Chontal	72,000	52	Motozintleco	500
22	Populuca	69,000	53	Paipai	410
23	Chatino	66,000	54	Kumiai	360
24	Amuzgo	63,000	55	Ixil	310
25	Huichol	55,000	56	Papago	270
26	Tepehuan	44,000	57	Cucapa	260
27	Triqui	36,000	58	Cochimi	240
28	Popoluca	28,000	59	Lacandon	130
29	Cora	27,000	60	Kiliwa	80
30	Kanjobal	27,000	61	Aguacateco	60
31	Yaqui	25,000	62	Teco	50

Source: Mexican Ministry of Education

provide more insight into the best methods of developing techniques to discover the often hidden potential in each Mexican child.

Characteristics of Giftedness and Cultural Values of Hispanics and the Behaviors Resulting from Their Interactive Influence

What might U.S. educators learn from our knowledge of Mexican culture and educational experiences to assist them in better identification of Hispanic children in their schools? The following guidelines may be useful.

Absolute Aspects of Giftedness

- High level of verbal ability
- Emotional depth and intensity
- Unusual sensitivity to feelings and expectations of others
- Ability to conceptualize solutions to social and environmental problems
- Unusual retentiveness; unusual capacity for processing information
- Leadership

Cultural Values Often Characteristic of Hispanics

- Traditional language of family
- Abrazo, a physical or spiritual index of personal support
- Family structure and dynamic male dominance
- Nuclear and extended family closeness valued
- Traditional customs and culture
- Collaborative rather than competitive

Behavioral Differences

- Communicates fluently with peers and within community, even if using nonstandard English
- Requires touching, eye contact, feeling of support to achieve maximum academic productivity
- Personal initiative, independent thought, and verbal aggressiveness often inhibited in females
- Often assumes responsibility for family and or younger siblings
- Adapts to successful functioning in two cultures
- Accomplishes more, works better in small groups than individually

Serving the Culturally Different Child: Some Solutions

- Raise (don't lower) expectations. We sometimes lead them to expect less of themselves.
- Model organization: Show them how you organize your own world and help them organize theirs.
- Model hard work: Praise it, reward it, demand it.
- Provide experiences and long-range planning. Show them how to break down difficult tasks into manageable parts.
- Teach them how to learn: Show them how to find answers for themselves in the absence of adults.
- Provide experiences which highlight the importance of support systems: Teach them the constructive use of human and material resources.
- Establish an atmosphere of meaningful interdependence: Design activities which demonstrate the importance of commitment to one another's learning.
- Give them direct instruction in study skills and related areas: Teach them time management, note taking, outlining, and the effective use of resources.
- Provide experiences which facilitate adaptation to new situations: Give them the skills to make meaningful transitions from one social system or set of expectations to another.
- Focus on their strengths as a vehicle for addressing their deficiencies: Teach them to use their abilities while at the same time encouraging them to improve where needed.

Since frequent crossing of the border between Mexico and the United States can be expected to continue into the future, it is especially important that educators of the two countries collaborate to identify and serve gifted Hispanic children. We can learn from one another, and in so doing, society and the children will benefit.

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JANET SAENZ, Ed.D. is Professor Emeritus at the University of Tlaxcala in Mexico City. She also works as a consultant for the state of Nuevo Leon providing professional training for teachers and administrators working with gifted students. She recently presented at the annual CAG conference in Los Angeles where she accepted recognition for Asociacion Mexicana para el Apoyo a Sobresalientes (AMEXPAS) as a global affiliate to CAG. She can be reached by e-mail at: boldt@servidor.unam.mx (though her travel schedule does not always permit her to answer mail quickly).

GIFTED IN AUSTRALIA

The quality of the school curriculum and classroom programs is critical to the identification process. Programs should enable outstanding abilities of students to emerge and be recognized by encouraging students to take learning risks while being sensitive to issues associated with judgement about potential and performance. The identification of gifted and talented students is more about the conditions and context in which their performance is assessed than their achievement against pre-determined criteria.

Source: Education Department of Western Australia, www.eddept.wa.edu.au/centoff/gifttal/giftide.htm

Characteristics of Gifted Children and Talented Children and Possible Associated Problems

Queensland Association for Gifted & Talented Children Inc.

Characteristics of Gifted Children and Talented Children	Possible Associated Problems
Gifted and talented children may:	**Gifted and talented children may:**
Learn quickly and easily; have the ability to abstract and reason critically; see relationships between ideas and events	Become bored and frustrated; dislike repetition and shallow curriculum; hide abilities to gain acceptance; receive negative adult attitudes to smartness
Exhibit verbal proficiency	Dominate discussion; have difficulty with listening skills; exhibit manipulative behaviour
Have a high energy level	Need less sleep; become frustrated with inactivity, lack of challenge or active inquiry
Exhibit heightened curiosity	Take on too many activities
Be extremely persistent; concentrate on tasks of high interest for extended periods	Disrupt class routine; feel stifled by restrictions; resist interruption or schedules; be perceived as stubborn, uncooperative
Exhibit different learning styles - accelerated: desiring mastery, achievement and/or - enriched: desiring depth of knowledge, the need to experience, emotional investment in subject, imagination	Become frustrated with absence of progress; be prone to being 'overdriven' and/or not be motivated by results; be resistant to interruption; be seen as time wasting or preoccupied
Exhibit unusual emotional depth and intensity	Be unusually vulnerable; feel confused if thoughts and feelings not taken seriously
Be highly sensitive; be acutely perceptive	Be perceived as immature; try to mask feelings to conform; be vulnerable to criticism
Be concerned with adult/moral issues; be idealistic	Attempt unrealistic reforms; feel frustrated, angry, depressed; develop a cynical attitude; receive intolerance from age peers
Aim at perfection	Set unrealistically high goals; feel inadequate; feel frustrated with others; fear failure, inhibiting attempts in new areas
Exhibit independence, nonconformity	Have a tendency to challenge and question indiscreetly; have difficulty with rigid conformity, may be penalised; exhibit rebellious behaviour
Have heightened self-awareness, feelings of being different	Experience social isolation; regard difference as bad, worthless, resulting in low self-esteem
Have a keen sense of humour	Use humour inappropriately or to attack others; feel confused when humour not understood; feel rejected by others
Possess unusual imagination	Be seen as weird; feel stifled by lack of creative opportunities
Respond and relate to older children and adults	Experience social isolation; be seen as show off, odd, superior, critical; be rejected by older children

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Cross-Cultural Identification Survey Results

BY BARBARA CLARK

The Communicator wishes to thank the World Council for Gifted and Talented Children for permission to include the results of a recent survey the council conducted regarding identification practices around the world. We found the results to be informative and interesting.

In the last newsletter we asked that you respond to a survey regarding practices used in identifying gifted students in countries around the world. Here are the results of the survey that include 32 responses representing 17 countries: Australia, Brazil, Canada, Denmark, Germany, Indonesia, Israel, Jamaica, Macedonia, Nigeria, Saudi-Arabia, South Africa, Thailand, Turkey, United Kingdom, United States, and Yugoslavia. Most of those responding were affiliated with a university or center for gifted studies. In addition, respondents were psychologists, lecturers, and members of the government in their countries.

Which methods are used in you country to identify gifted children?

Identification practices most commonly used for screening by the countries reporting were (1) high levels of achievement ascertained from class grades or achievement testing and/or (2) teacher recommendation. Parent recommendations were also used by many countries; characteristics checklists and creativity tests were each used by at least five countries. For actual identification, individual standardized intelligence tests were used more often than any other measure. Characteristics checklists or creativity tests were used more for identification than they were for screening. Teacher recommendation, achievement measures, and group standardized tests of intelligence were each used by some countries for identification although these methods were used far less often. Only one country, Australia, used teacher recommendation for both screening and for identification. (See Table 1.)

Tests used for identification include: the Stanford-Binet Intelligence Scales, the Wechsler Intelligence Scale (in forms specific to various countries), the Ravens, Cognitive Abilities Test, Leiter, Peabody, Thurston Primary Abilities Test, Test of Non-Verbal Intelligence, Otis-Lenon Intelligence Test. Many respondents use national tests designed and normed in their own countries. The cutoff scores reported on the most often used tests ranged from 140 to 130 on the Stanford-Binet; 140+ to 120 on the Wechsler, and the 95th percentiles on achievement tests. The subjects most often used to inform the process on the achievement of students were math and science, with reading and language arts less often mentioned.

Reflecting new trends in education some countries reported the use of portfolios, interviews, non-verbal instruments, peer and self-nomination, and multiple criteria in the identification process.

At what age are children commonly identified for gifted programs in your country?

The responses give evidence of a wide variety of ages countries use for identification. (See Table 1.)

What definition is most commonly used for children identified as gifted and talented in your country?

Seven countries report using intellectual, academic, creative, leadership, and/or fine and performing arts abilities to define gifted students (Australia, Brazil, Jamaica, Thailand, Nigeria, Saudi-Arabia and the US). A focus on intellectual ability is used to define giftedness in Germany, Indonesia, and the UK. Canada and Israel report the use of academic and intellectual ability to define giftedness. The UK reports using the term Highly Able rather than Gifted as their identifier for this population.

What placement would be most common for a child identified as gifted and talented in your country?

Clusters in general education classrooms (found in Australia, Canada, Jamaica, Turkey, the UK and the US), resource rooms (found in Australia, Brazil, Denmark, Canada, Turkey, and the US), and special classes (found in Australia, Indonesia, Israel, Thailand, Turkey, and the US) are commonly used forms of placement. Special schools are a form placement that is often used and can be found in Australia, Indonesia, Nigeria, South Africa, Thailand, Turkey, and the US. The most used form of placement is the adjunct program that includes clubs, seminars, summer programs, and before or after-school programs. Such placements can be found in Australia, Brazil, Canada, Denmark, Germany, Indonesia, Jamaica, Macedonia, Saudi-Arabia, South Africa, Thailand, Turkey, the US, and Yugoslavia.

Of special note are the following comments made regarding programs in various countries:

- South Africa has only one special school and the provisions are usually made for these children by summer programs or after-school programs.
- Saudi-Arabia offers summer and after-school programs that focus on developing thinking skills in creativity, problem solving, critical thinking, leadership, and decision making. These programs use advanced knowledge in school subjects, especially in science, math, and computers.
- Denmark has an egalitarian education system and private or after-school programs are the favored arrangements for these students.

- Canada offers many alternatives including week-long mini-course enrichment; Math Olympiads, science fairs, and university mentors to provide for their gifted students.
- Turkey reports offering magnet schools for music and art.
- In Brazil regular classes are the only choice for the gifted students as there are no special schools or special programs. Only eight states work with gifted children. Adjunct programs are taken privately when the parents realize their children are gifted. When children stay only half a day in school, the gifted children go to resource rooms in the other periods. There are several schools for talented students, especially music schools.
- Australia is involved in early entrance programs, mentoring, discovery programs, distance education, Future Problem Solving, and Tournament of the Minds.
- Yugoslavia offers small additional scholarships and stipends for about 10,000 children age 15 to 20-years-of-age from the country level through the National Foundation for Gifted Students and from local levels. About 3,000 children (12 to 17 years attend summer or winter camps for gifted students in science, math, sports, and music.

While this survey drew from only a small sample of the identification and placement activities offered to gifted students worldwide, the window it provided was most interesting and informative. If you wish additional information contact World Council Headquarters at worldgt@earthlink.net. ■

Table 1. * rarely

	Australia	Brazil	Canada	Denmark	Germany	Indonesia	Israel	Jamaica	Macedonia	Nigeria	Saudi-Arabia	South Africa	Thailand	Turkey	UK	US	Yugoslavia.
SCREENING METHOD																	
Teacher Recommendations	●	●		●	●	●			●		●	●	●			●	
Parent Recommendations	●	●	●	●	●			●					●			●	
Individual Standardized Intelligence Tests															*		●
Group Standardized Intelligence Tests	●	●						●									
Standardized Achievement Tests	●		●			●	●	●					●	●	●	●	
High Academic Achievement		●	●	●	●	●		●			●	●				●	
Characteristics Checklists	●		●			●		●								●	
Creativity Tests	●		*		●	●								●			
IDENTIFICATION METHOD																	
Teacher Recommendations	●		●					●		●				●	●		●
Parent Recommendations	●											●			●		
Individual Standardized Intelligence Tests	●	●	●	●	●	●	●	●	●		●	●	●	●		●	
Group Standardized Intelligence Tests	●		●				●				●			●	●	●	
Standardized Achievement Tests															●	●	
High Academic Achievement	●		●							●			●	●	●		●
Characteristics Checklists		●	●			●	●		●		●	●	●		●	●	●
Creativity Tests	●	●				●	●		●		●		●	●		●	●
AGE OF IDENTIFICATION	6-8	6-12	9-10	5-18	8	6	8-9	7	10	11-12	9-16	8	6	8		6-8	7

Identification for Gifted Education Programs in Russia

BY ELENA SCHEBLANOVA AND NATALIA SHOUMAKOVA

Natalia Shoumakova, researcher at the Pedagogical Institute in Moscow and at Sozvezdie School

There has been great interest in gifted education in Russia during the last 12 years. This interest has also encouraged research in the field of gifted identification. Many well-known tests such as the Torrance Tests of Creative Thinking, Stanford-Binet Test, and the Wechsler Intelligence Test were adapted to the Russian population and original methods were created for testing different aspects of giftedness including: intellectual ability, creativity, personality, and motivational traits.

However, the battery of tests of giftedness were not used for the purpose of identifying gifted children in Russia to participate in gifted programs. Instead, they were used for investigation and consulting. There are psychological centers in Russia where parents can receive psychological information about their children and recommendations about the cognitive and motivational development of their children. So, parents who wish can get information about cognitive or creative abilities of their children including knowledge of the child's IQ.

Some parents of gifted children notice the unusual ability and characteristics of their children and seek such centers for getting psychological consultation and recommendations. This usually occurs when it's time for the child to begin school or kindergarten. Parents want the best education for their children and want to test the abilities of the children and get information about the best school for them. However, many parents never apply to the psychological centers and just bring their children to the neighborhood school when it's time to go. Therefore schools must have specialists to identify gifted children among those who are entering first grade at the school at the age of 6 or 7 years.

When children are ready to begin school, their parents usually choose the school they think most appropriate for them. They can chose a school located near their home, or find a school with some differentiated curriculum such as a school with differentiated curriculum in math, language, music, art, or a school with a gifted program. The usual identification procedure includes determining the level of readiness for school. Teachers and psychologists who test the children are interested in revealing the general development of the child. They ask children about their interests, give them some tasks for testing memory, attention, and logical thinking; they are also interested in calculation and reading skills. So, school readiness is the main criterion for determining whether a child should have one or another kind of school or curriculum.

The development and use of curriculum that stresses creativity and intellectual development have changed the traditional look of identification of gifted children. Psychologists and teachers look first for creative and intellectual ability, and then they determine readiness for school. One of the most popular schools for the gifted in Moscow is Sozvezdie, school 1624. Sozvezdie uses the identification system created by the psychologists from the Russian Academy of Education (Scheblanova, E., Averina, I., & Shoumakova, N. 1991).

The curriculum for the gifted at the Sozvezdie school is based on the thematic interdisciplinary model and problem solving approach to teaching. The main idea of such curriculum is to encourage the creative, intellectual, and motivational development of gifted children with general giftedness. Gifted children also have differentiated curriculum in math, science, and language which helps them to have deep knowledge in these fields; but the main focus of the curriculum remains the creative and intellectual development of children.

In keeping with this focus, the gifted identification system at the Sozvezdie school is oriented toward finding children with actual and potential general giftedness. It means that the main criterion of identification isn't the child's achievement in some fields, but his level of cognitive needs, curiosity, research behavior, problem-finding orientation, and problem-solving abilities, his ability to generalize, to think creatively, and to demonstrate a high level of speech development and abstract thinking.

Sozvezdie school uses three main categories for identifying gifted children:

- Intellectual abilities—general cognitive intellectual development that is higher than that of age peers; advanced comprehension and generalization; a faster pace of learning.
- Creativity—high levels of ability in creating unusual, unique, and meaningful contributions, and solutions; a search for novelty through alternative and varied processes.
- Non-cognitive personality traits—high curiosity, task-commitment, open-mindedness, need for novelty, complexity, depth, and intensity.

The specific assessment instruments used to identify the children for the gifted program were developed by the school staff on the basis of the above-mentioned points. The gifted identification process for children entering the first class includes three successive stages:

- screening with a special, short cognitive ability test
- a play lesson
- an individual interview.

Before the beginning of this identification process, the school staff meets with the parents who wish their children to enter the school for gifted education. The purpose of the meeting is to explain to parents the features of interdisciplinary education for the gifted, the specific identification criteria and procedures in this school, as well as the goals and the process of identification.

The first stage is to eliminate children with cognitive development that is lower than that of their chronological peers. A set of 20 tasks in the form of drawings is presented to groups of 5 or 6 children, who must select the correct drawing according to instructions from the psychologist. The testing is conducted by two psychologists to ensure that all children understand the instructions. About 50% of the children taking the test score high enough to go on to the second stage of identification.

The second stage involves a series of play exercises with groups of 5 or 6 children: "Ask and guess," "Match a couple of things," "Comparisons," "Differences and resemblances," "Unusual uses," and "What happens if..." The purpose of the exercises is to reveal the abilities of each child to:

- formulate questions
- find and use new information
- make decisions
- generalize
- work with abstract ideas
- synthesize diverse relationships.

One psychologist leads the children in the play lessons. Meanwhile, the rest of the team of psychologists and teachers observe the children to evaluate their answers, activity, motivational characteristics, behavior, cooperation with peers, and other factors, according to previously determined criteria. After joint discussion and decision by the team, about 50% of the children and their parents are invited for individual interviews with the school entrance commission.

The entrance commission includes the school administration, teachers, and psychologists. During the individual conversation the child and his or her parents can speak about abilities, interests, traits, and problems of the child, and demonstrate his or her products and achievements. The teachers and psychologists can clarify matters where they have questions. The entrance commission considers the results of all identification stages, and makes the final decision regarding the child's entrance into the school for gifted education.

The identification process described above has been used in Sozvezdie school for eight years. It meets the requirements of multiple criteria of giftedness and uses a variety of instruments and situations to reveal both actual and potential abilities of the children. It also permits á multidimensional assessment of children's cognitive and non-cognitive (motivational) personality development. Involvement of the parents in the process allows understanding of family conditions and clarification of expectations.

This three-stage procedure makes it possible to identify gifted children among a rather large population during a relatively short time, and to decrease the number of children inappropriately admitted to the school. All stages of the identification process provide safe and favorable conditions for all children, including those who are not identified as gifted, because all children enjoy the exercises and they do not receive negative marks for their answers.

The results of a follow-up study of the students selected with high standardized cognitive ability and creativity tests confirm the effectiveness and efficiency of these procedures. The identified gifted children not only demonstrate high scores on tests but exhibit great interest in the learning process of the interdisciplinary program; they demonstrate high intellectual and creative abilities through their school and out-of-school achievements during their primary and secondary education.

NATALIA SHOUMAKOVA is a researcher at the Pedagogical Institute in Moscow and at Sozvezdie School. ELENA SCHEBLANOVA is a psychologist at the Russian Academy of Education in Moscow, Russia.

Interested in more about the gifted international scene?

For additional information concerning gifted education worldwide, contact the **World Council for Gifted and Talented Children** at 818-368-7501 or visit their website at www.worldgifted.org. The **14th Biennial World Conference** will be held in Barcelona, Spain, July 31-August 6, 2001. You are invited to submit proposals—research, individual presentations, or symposia—for the conference. Call for Papers can be found on the website; submission deadline November 1, 2000.

Resources for Identification

The National Research Center on the Gifted and Talented is funded by the Office of Educational Research and Improvement, United States Department of Education, under the Jacob K. Javits Gifted and Talented Students Education Act. It is a collaborative effort of the University of Connecticut, City University of New York/City College, Stanford University, University of Virginia and Yale University, with Joseph S. Renzulli as the director.

In the years since its establishment, the NRC/GT has provided a wealth of information for practitioners through its many published research projects. Included in this issue are short descriptions of the many papers dealing with characteristics and identification of gifted children in a variety of settings and circumstances.

You may find abstracts for all publications listed along with practical guidelines (see box Sample Abstract) at their website: www.gifted.euconn.edu/resource, or call them for additional information.

NRC/GT
University of Connecticut
362 Fairfield Road, U-7
Storrs, CT 06269-2007
860-486-4676
e-mail:
epsadm06@uconnvm.uconn.edu

SAMPLE ABSTRACT

Instruments Used in the Identification of Gifted and Talented Students

By Carolyn M. Callahan, Scott L. Hunsaker, Cheryll M. Adams, Sara D. Moore, and Lori C. Bland

Abstract

The study of instruments used in the identification of gifted and talented students had multiple facets. First, published literature, standardized and locally developed identification instruments and procedures, and strategies used to identify underserved populations were collected and catalogued in a computer database. Then standardized instruments were reviewed using the Scale for the Evaluation of Gifted Identification Instruments for each construct of giftedness that schools named as an area in which they identified gifted students. These reviews were also entered in the database. The review of identification procedures led to the compilation of standards for identification. In addition, descriptions of school systems from this sample which exhibited innovative, exemplary practice and a selected group of innovative Javits projects were described in a monograph entitled *Contexts for Promise: Noteworthy Practices and Innovations in the Identification of Gifted Students.*

Finally, data were collected on three locally developed instruments with potential for providing unique types of data for screening and identifying talent. The first instrument , the Diet Cola Test, was found to be reliable for group assessment purposes and useful as a program evaluation tool rather than as an identification instrument. The second instrument, a Peer Referral Form, was found to have high reliability and exhibited validity as recommended for a nomination form in the screening of Hispanic populations. Finally, the Teacher Search List was found to be reliably used by teachers in assessing middle school students.

Reference

Callahan, C. M., Hunsaker, S. L., Adams, C. M., Moore, S. D., & Bland, L. C. (1995). *Instruments used in the identification of gifted and talented students* (Research Monograph 95130). Storrs, CT: The National Research Center on the Gifted and Talented, University of Connecticut.

Guidelines

1. Adopt a clearly defined but broadened conception of giftedness.
2. Use standardized instruments, process and performance indicators and multiple sources of data (e.g., student, teacher, parent, peers) to get the most complete picture of the student being identified.
3. Use separate and unique instruments for different areas of giftedness.
4. Assess the construct under consideration by using instruments that are reliable and valid.
5. Identify or screen students without using single cutoff scores or summed matrix scores.
6. Use nontraditional methods for effective identification of underserved populations who may manifest giftedness in different ways.
7. Identify based on students' needs not on quotas.

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PAPERS AVAILABLE FROM NRC/GT

Instruments Used in the Identification of Gifted and Talented Students. #95130
Callahan, C. M., Hunsaker, S. L., Adams, C. M., et al. 1995
This multifaceted study examined literature, locally developed and standardized identification instruments, procedures, and different identification strategies. Reviews of exemplary practice led to the development of standards for identification, assessment, and screening.
$15.00

Project START: Using a Multiple Intelligences Model in Identifying and Promoting Talent in High-Risk Students. #95136
Callahan, C. M., Tomlinson, C. A., Moon, T. R., et al. 1995
This three-year research project focusing on low income, minority students found that broader conceptions of giftedness, new identification processes, increased teacher awareness of talent, and family outreach positively affect success in school.
$15.00

Issues and Practices Related to Identification of Gifted and Talented Students in the Visual Arts. #RBDM 9202
Clark, G. A., & Zimmerman, E., 1992
What is talent in the visual arts? This and many other current issues and practices relative to identifying gifted and talented young people in the visual arts are examined. Practical suggestions are provided in a step-by-step identification procedure.
$8.00

A Review of Assessment Issues in Gifted Education and Their Implications for Identifying Gifted Minority Students. #RM95204
Frasier, M. M., Garcia, J. H., & Passow, A. H., 1995
Research and literature review centers on the assessment and identification of potentially gifted students. Major reasons for the underrepresentation of special populations in gifted programs are analyzed.
$8.00

An Exploratory Study of the Effectiveness of the Staff Development Model and the Research-Based Assessment Plan in Improving the Identification of Gifted Economically Disadvantaged Student. #RM95224
Frasier, M. M., Hunsaker, S. L., Lee, J., et al., 1995
Observation of traits, attributes, and behaviors serve well in the process of identifying potentially gifted and talented students from economically disadvantaged families or students with limited English proficiency.
$6.00

Toward a New Paradigm for Identifying Talent Potential. #94112
Frasier, M. M., & Passow, A. H., 1994
Five elements featuring a new paradigm of giftedness are presented and discussed. The monograph sections provide practitioners with insight as to how giftedness may be identified among all groups of young people.
$10.00

Artistic Talent Development for Urban Youth: The Promise and the Challenge. #RM99144
Oreck, B., Baum, S., & McCartney, H.
Little information exists about identification and nurturance of artistic talent from diverse populations, especially those from economically disadvantaged circumstances. This study followed 23 children and young adults aged 10-26 as they progressed through three different stages of learning in music and dance.
Coming Soon

Core Attributes of Giftedness: A Foundation for Recognizing the Gifted Potential of Minority and Economically Disadvantaged Students. #RM95210
Frasier, M. M., Hunsaker, S. L., Lee, J., et al., 1995
What recognizable attributes characterize giftedness in children from minority or socially disadvantaged backgrounds? Literature reviews and qualitative content analysis provided the basis of viable procedures that facilitate teachers' recognition of target populations.
$5.00

Educators' Perceptions of Barriers to the Identification of Gifted Children From Economically Disadvantaged and Limited English Proficient Backgrounds. #RM95216
Frasier, M. M., Hunsaker, S. L., Lee, J., et al., 1995
Survey results provide insights into perceptions held by educators with respect to identification of gifted minority and economically disadvantaged students. Implications of the study are discussed with an emphasis on appropriate staff development.
$5.00

The Recruitment and Retention of African American Students in Gifted Education Programs: Implications and Recommendations. #RBDM 9406
Ford, D. Y., 1994
Recent collective efforts of leaders in the field of gifted education have focused attention on gifted African American students, their identification, and their placement in gifted programs. Critical issues related to continued program involvement are addressed.
$10.00

Recognizing Talent: Cross-Case Study of Two High Potential Students With Cerebral Palsy. #CRS94308
Willard-Holt, C., 1994
Consider a gifted student with cerebral palsy unable to communicate with speech. Two such students were studied to determine how they indicated their intellectual abilities. The best instructional strategies to facilitate their abilities are documented.
$6.00

A New Window for Looking at Gifted Children. #RM95222
Frasier, M. M., Martin, D., Garcia, J., et al., 1995
If a potentially gifted child comes from an economically disadvantaged family and has limited proficiency in English, how will he or she be identified? This document addresses issues relating to possible underrepresentation in gifted programs and provides practical suggestions.
$6.00

A Study of Achievement and Underachievement Among Gifted, Potentially Gifted, and Average African American Students. # 95128
Ford, D. Y., 1995
Are African Americans underrepresented in programs for gifted and talented students? This study researched this question, while examining student identification procedures, attitudes, and perceptions associated with discrimination and underachievement.
$10.00

Glossary of Basic Measurement Terms

An Excerpt from Harcourt, Inc.

Ability: A characteristic indicative of an individual's competence in a particular field. The word "ability" is frequently used interchangeably with aptitude, although many psychologists use "ability" to include what others term "aptitude" and "achievement."

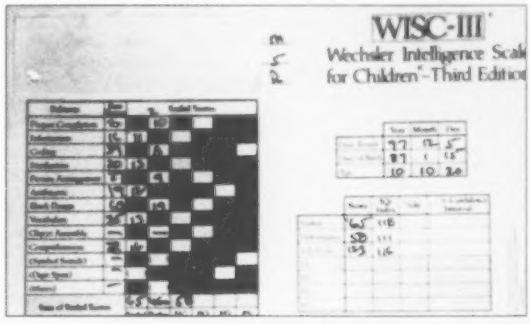
Age Norms: The distribution of test scores by age of test takers. For example, a norms table may be provided for 9 year olds. This age-norms table would present such information as the percentage of 9 year olds who score below each raw score on the test. (See Norms.)

Aptitude. A combination of characteristics, whether native or acquired, that are indicative of an ability to learn or to develop proficiency in some particular area if appropriate education or training is provided. Aptitude tests include those of general academic (scholastic) ability; those of special abilities, such as verbal, numerical, mechanical, or musical; tests assessing "readiness" for learning; and tests that measure both ability and previous learning, and are used to predict future performance—usually in a specific field, such as foreign language, shorthand, or nursing.

Correlation: The degree of relationship between two sets of scores. A correlation of 0.00 denotes a complete absence of relationship. A correlation of plus or minus 1.00 indicates a perfect (positive or negative) relationship. Correlation coefficients are used in estimating test reliability and validity.

Diagnostic Test. A test used to "diagnose" or analyze; that is, to locate an individual's specific areas of weakness or strength, to determine the nature of his or her weaknesses or deficiencies, and, if possible, to suggest their cause. Such a test yields measures of the components or subparts of some larger body of information or skill. Diagnostic achievement tests are most commonly prepared for the skill subjects.

Discrimination Index. The extent to which an item differentiates between high-scoring and low-scoring examinees. Discrimination indices generally can range from -1.00 to +1.00. Other things being equal, the higher the discrimination index, the better the item is considered to be. Items with negative discrimination indices are generally items in need of rewriting.



Equivalent Forms. Any of two or more forms of a test that are closely parallel with respect to content and the number and difficulty of the items included. Equivalent forms should also yield very similar average scores and measures of variability for a given group. Also called parallel or alternate forms.

Grade Equivalent (G.E.): A norm-referenced score; the

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grade and month of the school year for which a given score is the actual or estimated average. A grade equivalent is based on a 10-month school year. If a student scores at the average of all fifth graders tested in the first month of the school year, he/she would obtain a G.E. of 5.1. If the score was the same as the average for all fifth graders tested in the eighth month, the grade equivalent would be 5.8. There are some problems with the use of grade equivalents, and caution should be used when interpreting this type of score. For example, if a student at the end of fourth grade obtains a G.E. of 8.8 on a math subtest, this does not mean that the child can do eighth-grade work. Rather, it means that the child obtained the same score as an average student in the eighth month of the eighth grade, had the eighth-grade student taken the fourth-grade test.

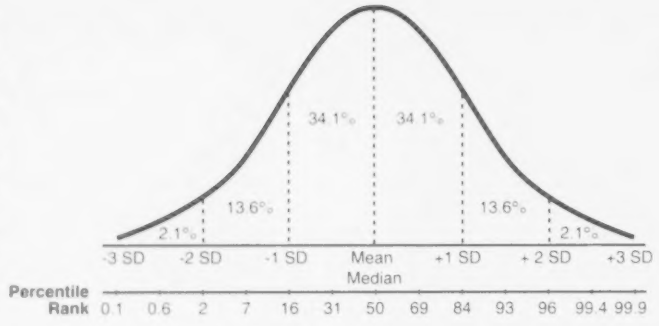

Figure 1. A Normal Distribution.

Item Analysis. The process of examining students' responses to test items to judge the quality of each item. The difficulty and discrimination indices are frequently used in this process.

Mean ($\bar{X}$). The arithmetic average of a set of scores. It is found by adding all the scores in the distribution and dividing by the total number of scores.

Median (Md). The middle score in a distribution or set of ranked scores; the point (score) that divides a group into two equal parts; the 50th percentile. Half the scores are below the median, and half are above it.

Mode. The score or value that occurs most frequently in a distribution.

Normal Distribution. A distribution of scores or other measures that in graphic form has a distinctive bell-shaped appearance. In a normal distribution, the measures are distributed symmetrically about the mean. Cases are concentrated near the mean and decrease in frequency, according to a precise mathematical equation, the farther one departs from the mean. The assumption that many mental and psychological characteristics are distributed normally has been very useful in test development work.

Figure 1 is a normal distribution. It shows the percentage of cases between different scores as expressed in standard deviation units. For example, about 34% of the scores fall between the mean and one standard deviation above the mean.

Norms. The distribution of test scores of some specified group called the norm group. For example, this may be a national sample of all fourth graders, a national sample of all fourth-grade males, or perhaps all fourth graders in some local district. (See Figure 1)

Out-of-Level Testing. The activity of administering a test level that is different from the one designated for a student of a particular age or in a particular grade. For example, a fourth grader might be given a test level designated for use in Grade 2. Out-of-level testing is used so that students can be tested on the content appropriate to their current level of functioning; that is, above or below their grade placement or age.

Percentile. A point on the norms distribution below which a certain percentage of the scores fall. For example, if 70% of the scores fall below a raw score of 56, then the score of 56 is at the 70th percentile. The term "local percentile" indicates that the norm group is obtained locally. The term "national percentile" indicates that the norm group represents a national group.

Quartile. One of three points that divided the scores in a distribution into four groups of equal size. The first quartile [equation], or 25th percentile, separates the lowest fourth of the group; the middle quartile [equation], the 50th percentile or median, divides the second fourth of the cases from the third; and the third quartile [equation], the 75th percentile, separates the top quarter.

Raw Score. A person's observed score on a test, i.e., the number correct. While raw scores do have some usefulness, they should not be used to make comparisons between performance on different tests, unless other information about the characteristics of the tests is known.

Reliability. The extent to which test scores are consistent; the degree to which the test scores are dependable or relatively free from random errors of measurement. Reliability is usually expressed in the form of a reliability coefficient or as the standard error of measurement derived from it. The reliability of a major classroom achievement test should be at least .60. The reliability of a standardized achievement or aptitude test should be at least .85. The higher the reliability coefficient the better, because this means there are smaller random errors in the scores. A test (or a set of test scores) with a reliability of

1.00 would have a standard error of zero and thus be perfectly reliable.

Scaled Score. A mathematical transformation of a raw score. Scaled scores are useful when comparing test results over time. Most standardized achievement test batteries provide scaled scores for such purposes. Several different methods of scaling exist, but each is intended to provide a continuous score scale across the different forms and levels of a test series.

Scholastic Aptitude. The combination of native and acquired abilities that are needed for school learning; the likelihood of success in mastering academic work as estimated from measures of the necessary abilities.

School Ability Index (SAI). Obtained from the Otis-Lennon School Ability Test, normalized standard score with a mean of 100 and a standard deviation of 16. (See Deviation IQ and Standard Score.) An individual who had a School Ability Index of 116 would be one standard deviation above the mean, for example. This person would be at the 84th percentile for his or her age group.

Standard Age Scores. Normalized standard scores provided for specified age groups on each battery of a test. Typically, standard age scores have a mean of 100 and a standard deviation of 15.

Standard Deviation (S.D.). A measure of variability, or dispersion, of a distribution of scores. The more the scores cluster around the mean, the smaller the standard deviation. In a normal distribution of scores, 68.3% of the scores are within the range of one S.D. below the mean to one S.D. above the mean.

Standard Error of Measurement (SEM). The amount an observed score is expected to fluctuate around the true score. For example, the obtained score will not differ by more than plus or minus one standard error from the true score about 68% of the time. About 95% of the time, the obtained score will differ by less than plus or minus two standard errors from the true score.

Standard Score. A general term referring to scores that have been "transformed" for reasons of convenience, comparability, ease of interpretation, etc. The basic type of standard score, known as a z-score, is an expression of the deviation of a score from the mean score of the group in relation to the standard deviation of the scores of the group. Most other standard scores are linear transformations of z-scores, with different means and standard deviations.

Stanines. Expressed as a nine-point normalized standard score scale with a mean of 5 and a standard deviation of 2. Only the integers 1 to 9 occur. The percentage of scores at each stanine is 4, 7, 12, 17, 20, 17, 12, 7, and 4, respectively. While stanines are popular, they are actually less informative than, say, percentiles. For example, for three students with percentiles of 39, 41, and 59, the first would receive a stanine of 4, and the next two stanines of 5. We would thus be misled into inferring that the latter two students were the same, and different from the first with respect to the characteristic measured, whereas in reality the first two individuals are essentially the same, and different from the third.

Validity. The extent to which a test does the job for which it is intended. The term validity has different connotations for different types of tests and, therefore, different kinds of validity evidence are appropriate for each.

Weighting. The process of assigning different weights to different scores in making some final decision. To do weighting correctly, one must convert all scores to a common scale or metric. For example, we cannot average temperatures measured with both the Celsius and Fahrenheit scale until the temperatures from one scale are converted to the other scale. For educational data, we should first convert all data to a common scale such as a z-score, a T-score, or some other standard score. Then, to combine scores, we must determine how much weight to give each score. Weights are usually assigned subjectively, based on the importance and/or quality, e.g., reliability, of the data.

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You know your child is gifted when...

WHILE WAITING FOR YOUR FIVE-YEAR-OLD to go to sleep, he asks "Mom, what's your own personal theory of the big bang?"

THE ANSWER TO "WHAT DO YOU LIKE BEST about kindergarten?" is "Long division."

YOUR CHILD TAKES THREE DIFFERENT BOOKS along on a picnic to "classify" any creatures you may come across.

EFFECTIVE IDENTIFICATION

Continued from 1

grams. The three taken together guarantee that identification will always be a controversial topic.

Until our beliefs about identification change, little progress can be made in developing a better system that resolves all of the issues noted. Our task is not to identify only the truly gifted but also to locate students who demonstrate undeveloped potential intellectually and in specific areas including academic, artistic, and leadership domains. Our task is not to select students for all time but to select them for enhanced instructional opportunities that may benefit them at a given stage of development.

Whether the intervention works or not, students should be regularly reassessed for new opportunities and dropped from those that are not meeting their needs. Our task is not to be gatekeepers to exclude students but rather custodians of promoting student growth by recognizing discernible strengths and working with the school community to enhance them whether through the gifted program or another medium. Establishing numerical cutoffs on relevant criteria may be less useful than gaining a holistic assessment of students being considered and matching program to strengths of a particular population.

The Elusiveness of Giftedness

What do we currently understand about the act of identification that may help us deal with the difficulties inherent in the process? First of all, many studies and authors favoring newer conceptual definitions of giftedness acknowledge the multidimensionality of the phenomenon (Gardner, 1991; Sternberg, 1985). Some students are omnibus gifted, capable across many domains and areas. Yet the majority of gifted students are not. They have distinct profiles of strengths and relative weaknesses. Their abilities may be discerned by performance and not paper and pencil tests. Their giftedness may not be evoked by the school environment but shine in the context of community. Some may experience developmental spurts at key stages of development which could not be discerned earlier. Interest may be piqued at some stage that motivates a student to develop abilities in relevant areas. In all of these examples, there is a clear sense that giftedness may be elusive in its manner and context of manifestation.

We also know that there are both genetic and environmental factors at work in the manifestation of giftedness. Individuals vary considerably in their ability to function effectively in various domains. Attention must be paid to the "rubber band" effect of human potential—our genetic markers allow for expansive growth and development but not to an unlimited extent. We can stretch ourselves within a range based on the genetic potential which we possess. It is the role of education in the larger environment to provide the experiences which may stretch the individual potential in the areas of greatest flexibility for learning.

"Our task is not to be gatekeepers to exclude students but rather custodians of promoting student growth..."

This recognition of pre-existing individual differences would help educators realize the folly of trying to find a "one size fits all" program of study or curriculum. As long as differentiated practices are reserved for labeled special populations, the spirit of individualized learning will always be in jeopardy. Giftedness does not guarantee entitlement to educational privilege, but it does call for a flexible response by schools and other agencies to higher levels of functioning , based on the individual level of functioning not age.

Degree or Extent of Giftedness

The concept of degree or extent of giftedness is an important aspect to consider in developing identification processes. When I directed the talent search program at Northwestern University, I had teachers tell me that seventh grade students who were scoring at the 600 level in mathematics on the Scholastic Aptitude Test (SAT) weren't truly precocious in mathematics, even though their scores placed them in the top 2% of the population. Only the 700's met that criterion.

What these teachers were noting is the wide band of difference that exists within a gifted population such that students at the bottom of a particular group may function very differently from those at the top of the group. In psychometric language, this means that gifted students may vary among themselves by as much as three standard deviations in respect to mental functioning in one or more areas. Reading level, for example, in a fifth grade gifted program could range from seventh to college level.

The implications of this phenomenon for identification is to decide how broad a group might benefit from a particular intervention and then ensure differentiation of instruction in the delivery of that intervention to ensure adequate challenge for those at the top of the group and yet not cause anxiety to set in for those at the bottom. Wide ranges of abilities within a gifted population have to be tolerated in most gifted programs since the context of delivery frequently requires sufficient numbers of students to justify the special intervention.

Ability Alone Not Always Sufficient

We also know that the recognition of advanced behavior is the most critical variable in determining who

can best profit form advanced work and instruction. To deny services to students clearly advanced in reading, mathematics, the arts, or other domains because they have not been formally assessed calls into question a school system's capacity to respond to individual differences. This principle of responding to advanced student behaviors is central to including teacher, parent, and community input into the identification process. Use of domain-specific checklists is one way to assess such behavior in context. Such checklists also contribute important insights into effective programming for individual children.

Work in talent development (e.g. Csikszentmihalyi, 1996; Simonton, 1999) has convinced most people in our field that ability alone may be insufficient to predict success in gifted programs, let alone life endeavors. Non-intellectual factors like motivation, personality, persistence, and concentration impact greatly on creative productivity at particular stages of development but also over the lifespan. Thus our identification processes may need to be sensitive to students whose ability threshold may be slightly lower but whose capacity and zeal to do work in a given domain may be very high. Tapping into these non-intellectual strengths can best be accomplished through performance and portfolio-based assessment protocols coupled with careful observation of performance over time.

Best Practices

What are best practices for identification based on research? Currently there is a call for a new paradigm for identification, in line with the new constructs of giftedness that have been conceptualized (Passow & Frasier, 1996).

This new paradigm of identification would recognize the different ways in which students display giftedness and would call for more varied and authentic assessment. Instead of relying on intelligence and achievement test scores solely for identification, multiple criteria would be used, including more non-traditional measures such as observing students interacting with a variety of learning opportunities (Passow & Frasier, 1996) it is a belief of many in the field of gifted education that new conceptions of giftedness and a new paradigm for identifying and selecting students will help minority and disadvantaged students become more represented in gifted programs (VanTassel-Baska, Patton, & Prillaman, 1991; Ford, 1996).

Dynamic Assessment

Part of the process of non-traditional assessment involves trying to tap into fluid rather than crystalized abilities. Dynamic assessment is one such non-traditional approach used to assess cognitive abilities that are often not apparent when most forms of standardized tests are used. This type of assessment usually consists of a test-intervention-retest format, with the focus being on the improvement students make after an intervention, based on learning cognitive strategies related to mastery of the testing task (Kirschenbaum, 1998).

Spatial Measurements

Research evidence also suggests that disadvantaged learners perform better on tasks that emphasize fluid over crystalized intelligence (Mills & Tissot, 1995), and spatial reasoning over verbal and mathematical (Naglieri, 1999). By employing an assessment approach that contains a strong spatial component , disparities between scores by socio-economic status (SES) levels or ethnic group may be reduced (B. Bracken, presentation at College of William and Mary, April, 1999). Thus using instruments like the Matrix Analysis Test and the Ravens Matrices may yield somewhat different populations of students than the use of traditional intelligence tests that emphasize verbal tasks. The new UNIT test also offers promise in this regard as a full scale measure.

Two-stage Process Needed

There is also a need to employ a two-stage process of screening and identification to ensure that appropriate measures are used in the selection of students for a program. It is not highly defensible to use group achievement and intelligence test score data as the final arbiters for selection by merely raising the cutoff, let's say to 98%. Many times school districts will have large numbers of students who would qualify at 95%. To use a norm-referenced test that is grade- level calibrated to make judgements about students at the top end is not justifiable, given the problems of ceiling effect.

A better and more defensible strategy is to use off level aptitude and achievement measures to ascertain a true dispersion of the student scores in order to select the most able. Off level instrumentation like the PLUS test, the SCAT test and the SAT all provide such information so that identification can be more precise. Use of these instruments over the past 25 years has continued to demonstrate effectiveness and efficiency in discerning able students' range of functioning in critical domains (Benbow & Stanley, 1996).

Measures Need to Match Programs

The use of measures that are relevant to program emphasis is also a crucial consideration. Using verbal measures to decide who should be in a math program makes no sense. Ensuring that an identification system is geared to the nature of the program intervention is crucial, especially at the second stage of the process. Thus, if the program emphasis is writing, a writing sample would be included at the identification stage, or if the program emphasis is science, a performance-based science assessment or science project portfolio would be included to make final selections. Such

authentic assessment data strengthen the case for selecting the most apt individual students for participation in carefully defined program areas (VanTassel-Baska, 1998)

Age Considerations

The use of identification protocols that are appropriate at different stages in the development of students is also a best practice in the field. Early childhood identification procedures, because of age and lack of contact with the school, have to consider parental feedback more carefully, use testing data more judiciously, and consider advanced performance tasks as an important part of the process. At secondary level, based on different organizational contexts, identification procedures need to be distinctive in respect to protocols for finding students in a broader range of talent areas and for considering domain-specific approaches based on departmental courses of study.

Equity Required

Finally, the identification process must be equitable in respect to selection, validation, and placement of students. Making placement decisions based on individual profile data is also considered best practice as it allows professional judgement to be exercised rather than just allowing a numerical cut-off score on a matrix model to determine placement (Borland & Wright, 1994).

Identification will continue to present a challenge to educators of the gifted. Yet thoughtful consideration of and reflection on various problems, issues, and current best practices can make the process more feasible and credible in school contexts.

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DR. VanTASSEL-BASKA is the Jody & Layton Smith Professor of Education and the Director of the Center for Gifted Education at the College of William and Mary at Williamsburg, Virginia. She is a well-known author as well as the editor of *Gifted and Talented International*, the journal of the World Council for Gifted and Talented Children.

IDENTIFICATION OF GIFTED EL

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we are to obtain any meaningful information.

4. Assessment Team Review

Once information has been gathered on English Learner candidates for GATE, the GATE and Bilingual Program Coordinators meet and review student files. Each student is considered in light of traditional GATE qualifying characteristics as well as characteristics more typical of language minority students such as academic achievement in primary language and rate of acquisition of English. Some students readily meet the traditional standards and others show their giftedness by means of modified procedures These students are easily placed in our GATE program. There are always a few others who come close and show great promise. Depending on the opinion of the team, these students are placed in the GATE program on a situational basis or scheduled for monitor and review at a later time.

Other Necessary Accommodations

In addition to the process described above, we have found that other critical steps must be taken to ensure success:

- *Materials sent home to English Learners must be written in a language the parents understand. Our district translator works closely with the GATE program at the district and state level. Bilingual program rosters allow us to identify home languages for GATE mailings.*
- *Parent meetings are held in English and Spanish. Again, our district translator is an invaluable resource to staff and parents.*
- *Parents are invited to meetings by phone calls in Spanish. This personal touch means a lot.*
- *All permission forms are printed in English and Spanish. Oral explanations are also provided by district bilingual staff.*

- *Child care is provided at parent meetings.*

Collaboration an Ongoing Activity

We continue to refine our procedures and look for ways to increase parent involvement and improve our instructional programs. The challenge to meet the needs of our diverse population is very motivating. From our experience we can truly say that the ability to see a problem from more than one perspective has opened new possibilities for ourselves and our students.

Useful Resources

California Association for Bilingual Education
660 South Figueroa Street, Suite 1040
Los Angeles, CA 90017
Phone: 213-532-3850
Fax: 213-532-3860
E-mail: info@bilingualeducation.org
Web: www.bilingualeducation.org

California Association for the Gifted
5777 W. Century Boulevard
Suite 1670
Los Angeles, CA 90045
Phone: 310-215-1898
Fax: 310-215-1832
E-mail: CAGOffice1@aol.com
Web: www.CAGifted.org

ERIC Clearinghouse on Rural Education and Small Schools
AEL, Inc.
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Phone: 800-624-9120 or 304-347-0400
Fax: 304-347-0487
TDD: 304-347-0448
E-mail: aelinfo@ael.org.
Web: www.ael.org

National Clearinghouse for Bilingual Education
The George Washington University Center for the Study of Language & Education
2011 Eye Street NW, Suite 200
Washington, DC 20006
Phone: 202-467-0867
Fax: 800-531-9347
202-467-4283 (within DC metro area)
E-mail: askncbe@ncbe.gwu.edu
Web: www.ncbe.gwu.edu

University of California Linguistic Minority Research Institute
South Hall, Rm 4722
University of California
Santa Barbara, CA 93106
Phone: 805-893-2250
Fax: 805-893-8673
Web: http://lmrinet.gse.ucsb.edu/

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Gracias to Margaret Gosfield for inspiring and nurturing this collaboration as the former GATE Program Specialist in VUSD. *Gracias* to Parnelli Sharp for continuing the process and adding her enthusiasm and knowledge as our new GATE Program Specialist.

JENNIFER ROBLES, Ed.D., is the Bilingual Program Specialist for Ventura Unified School District. She and the district GATE Specialist have presented several times at the annual conference of the California Association for Bilingual Education. She can be reached at: jrobles@vtusd.k12.ca.us.

A BILINGUAL AND GATE PARTNERSHIP
Steps for Expanding Your District's GATE Identification Process

1. **Connect with your district's bilingual program or English Language Development coordinator**
2. **Share information about GATE Identification Criteria and Bilingual Initial Identification Process**
3. **Review your district's current results in terms of identifying gifted English Learners**
4. **Set goals together**
5. **Modify/Expand your existing GATE identification process:**
   - **Involve Bilingual and GATE staff**
   - **Find out which state-approved test your district uses for initial identification of English Learners. There are quite a few. The most common are the Language Assessment Scales (LAS), Bilingual Syntax Measure (BSM), Idea Proficiency Test (IPT), and Bilingual Inventory of Native Language (BINL).**
   - **Keeping in mind that it takes 3 to 5 years for students in successful programs to develop oral English fluency, design a rating scale for your English learners.**
   - **Add additional assessments such as the MAT, SABE2, and Rapid Acquisition of English Consideration to your process**
   - **Explain new process to teachers and parents**
6. **Try out your new process**
7. **Measure success**
8. **Modify and continue as needed**

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CAG PUBLICATIONS

Advocating for Gifted English Language Learners

An Activity Handbook for Professional Development and Self-Study

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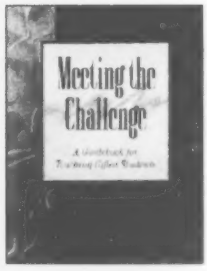

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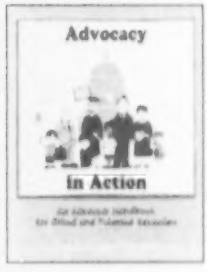

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COMMUNICATOR

CALIFORNIA ASSOCIATION FOR THE GIFTED

VOLUME 31, NO. 3, SUMMER 2000

ISSUE HIGHLIGHT

ENCOURAGING PASSION, LEADERSHIP & ETHICS IN GIFTED YOUTH

We look to our gifted youth to become the visionaries, problem solvers, and leaders of tomorrow. This issue includes insights and models for educators and parents to use in guiding gifted youth toward becoming passionate and ethical future leaders. Topics include:

- **Examining the many facets of passion**
- **Using systematic risk taking as part of leadership training**
- **Seeking the sources of moral integrity within gifted children**
- **Encouraging leadership in young women**
- **Expressing passion through student voices**
- **Organizing a student leadership conference**
- **Training for leadership through a schoolwide drama and music production**
- **Implementing classroom Socratic Seminars**

UPCOMING ISSUE HIGHLIGHTS

Fall - Highly Gifted

Spring - Examining Issues in Gifted Education

Summer - Professional Development

Fall - Social Science

Gifted Education and the Romance of Passion

BY FELICE KAUFMANN

Few topics in the field of education are as engaging to parents and educators of gifted youth as the role of passion in learning. We cherish the image of a classroom filled with sparkly eyed children racing to school to pursue projects they love. We devour stories of individuals who as adults have gone against the odds to "follow their bliss." And when we encounter a student for whom the lights never seem to go on, we strive to find something—anything—that will possibly ignite the student's inner flame. We want gifted students to become contributing members of society and believe that to achieve this, we must encourage students to pursue ideas and projects they love. And, of course, we should.

Why, then, as I consider the topic for this special issue, do I find myself wanting to challenge the notion of passion in education? Why do I feel myself cringing when I read about "falling in love with an idea" (Betts, 1985; Torrance, 1995) even when I have written about this myself (Kaufmann, 1986)? Why am I sitting at my desk wondering if the proliferation of articles and books extolling passion in teaching and learning has actually done more harm than good?

Reflecting on my rather surprising reaction to this topic, I realize that I am not "against" passion as a significant part of the educative process but am concerned that the romanticized interpretation of passion as "excited," "turned on," or "exhilarated" has so diluted the concept that it has been rendered as bland and meaningless as "have a nice day." At the risk of sounding like a curmudgeon, I would like to suggest not that we abandon our interest in passion, but that we re-examine our ideas about it and incorporate a broader and more complex array of feelings and experiences into our definition—even if some of these are asynchronous with the positive, uplifting images typically associated with the term.

Surprising Definitions

Two experiences have brought me to my present understanding of the role

See ROMANCE OF PASSION, 33

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LETTERS TO THE EDITOR
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LETTERS

Michigan Benefits

I just received my Winter 2000 issue of *Communicator* and had to tell you what a truly wonderful publication this is. It is probably the most informative and useful resource I have—and I think I subscribe to all the major G/T journals! CAG is way out there on the frontier—the rest of us appreciate your leadership. I wish we, in Michigan, could import some of that California talent!

Sandra T.
MI

Spring Issue on Identification

I have been the recipient of many journals, newsletters and magazines during the 30 years I have been involved in gifted education—first as parent, then as an educator, and now as an advocate. My usual process when receiving a new issue of a publication is to quickly review the table of contents, read one article that catches my eye and then sit the publication on my table with other "to read" items. But yesterday I had a very different experience. I received the Spring issue of CAG's *Communicator* and quickly began to thumb through the issue—and found myself reading each and every article quickly through and in the order printed. I found the information very thorough, very informative, and so balanced. I was also pleased that the approaches were very realistic but also very professional. Please consider issuing this same publication on a CD so that California's school district personnel can provide copies to all the educators and parents involved in their GATE programs.

Sharon Freitas
Sacramento, CA

Broader Definition of Giftedness

I just read the latest issue this morning, and you've done it again. Truthfully, I considered not reading an issue on "Identification." Those of us with PG (profoundly gifted) kids generally haven't found it difficult to get their giftedness acknowledged (at least if they haven't gone into hiding yet). So I was thrilled to read the broader take Joyce VanTassel-Baska took on the issue, including not only the broad category of "gifted," but the need to identify levels of giftedness to better meet children's needs. Thank you and Joyce for that excellent piece.

Hilary Cohen
Torrance, CA

Teacher Training

What a great *Communicator* [Winter 2000, Math/Science issue]. One of the very very best I've ever read. Many, many articles pertinent to the GATE coursework I teach.

John DeLandtsheer
Redlands, CA

Kudos

Another outstanding issue of the Communicator—jam packed with useful information.

Sharon Lind
Kent, WA

Apologies

We regret any confusion we may have caused with our headline referring to quotations from the Hoagie website in our spring issue (p. 3). The correct Hoagies' phrase is "You know you're the parent of a gifted child when..."

This should not be confused with a new publication by Free Spirit Publishing which is entitled, *You Know Your Child is Gifted When....* This new book is authored by Judy Galbraith and illustrated by Ken Vinton. Look for a review of the book in the fall *Communicator.*

CALENDAR

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JUNE 1–3, 2001
San Francisco

Board Meetings are open to the public. If a meeting is scheduled in your area and you wish to attend, please call the CAG office for specific information.

39TH ANNUAL CAG CONFERENCE
MARCH 2–4, 2001
California Association for the Gifted
"The Whole Child: A Journey of Giftedness"
Sacramento

NATIONAL & INTERNATIONAL CONFERENCES

NOVEMBER 1–5, 2000
National Association for Gifted Children (NAGC)
"Crossroads to the Future
Atlanta, GA
Contact: 202-785-4268

JULY 31–AUGUST 4, 2001
14th Biennial World Conference
World Council for Gifted and Talented Children
"The World of Information: Opportunities and Challenges for the Gifted and Talented"
Barcelona, Spain
Contact: 818-368-7501 or www.worldgifted.org
Presentation proposals due November 1, 2000

The California Association for the Gifted serves its members in many valuable ways:

- Institutes and conferences for educators and families
- Parenting strategies to nurture giftedness
- Advocacy to assure funds for GATE programs
- Publications about differentiated curriculum and contemporary issues affecting gifted students

CAG is a mission-driven, volunteer administered, nonprofit associa-

FROM THE EDITOR

MARGARET GOSFIELD

"They are the future leaders of America!"

How many times have we *heard* those words regarding gifted children? How many times have we used those words to justify—at least in part—special programs for gifted youngsters? And yet, how many local districts incorporate planned leadership training as part of their program options for gifted and talented students? The answer is "very few" if California is representative of the rest of the country.

Like many other states, California includes leadership as one of six categories in which children can be identified as gifted. When we started to search for exemplary district leadership programs, however, we found few to serve as models. Even those districts that include leadership as part of their identification criteria, usually serve the students with programs having an academic or creative learning focus, and lacking a leadership training component.

It can be legitimately argued that leadership as well as ethics and passion should not be taught in a vacuum, but incorporated throughout the disciplines. Therefore, leadership training can and should be part of a history or language arts class, for example, as well as being central to extended enrichment activities. It is doubtful, however, that training will happen without thoughtful consideration and planning We hope that this issue of the *Communicator* will inspire educators and parents to make a conscious effort to infuse leadership, ethics, and passion throughout the curriculum and extracurricular activities at school and at home.

You will notice that the majority of articles in this issue have leadership as the primary focus. It is important to point out, however, that promoting ethical leaders and encouraging passionate responses in young leaders is part of the goal of leadership training wherever we find it.

Felice Kaufmann leads off with an article that does focus on passion. Her 20-year research of the early presidential scholars has provided many examples of and insights regarding passion—but not necessarily the kind you might expect. Kaufmann points out that passion is much more broad and complex than what we might first perceive.

Maureen Neihart recognizes that leadership always involves a certain amount of risk taking. She contends that by providing practice in taking small risks in a systematic manner, students will be better prepared for the larger risks they may face as they grow and mature. "The Risky Business of Leadership" includes guidelines to accomplish this goal.

Mary-Elaine Jacobsen's article, "The Roots of Integrity: Gifted Traits, Gifted Truths," has us delve into what she calls "First Nature Traits of Giftedness." The article is a provocative piece of writing with the goal of helping us to understand and support the deep concern for others and the intolerance of unfairness so often displayed by gifted youth.

Frances Karnes has no doubt written more about leadership and gifted youth than any other in the field. She and her colleague, Jane Chauvin, share background information pertaining to leadership training for gifted youth, as well as details regarding their *Leadership Skills Inventory*, and the *Leadership Development Program*. This program has been implemented in summer leadership sessions at The University of Southern Mississippi for a number of years.

"I'm a Noun, Not an Adjective: Nurturing Leadership in Gifted Young Women," by Hilda Rosselli points out some of the measures needed to encourage and support gifted females in the arena of leadership.

Also included are three articles describing specific activities for skill-building in leadership, ethics, and passion. Teacher Katie Pederson incorporates Socratic Seminars in the Hands-On Curriculum article featuring this important component of the San Diego Unified School District's GATE program. Maryanna Gray enthusiastically describes the "Americana" project at LaColina Junior High School in Santa Barbara which has become a schoolwide activity but still relies on the gifted students to provide the leadership for an elaborate dramatic and musical production each winter. And the Tri-County GATE Council (Ventura, Santa Barbara, and San Luis Obispo) shares their organization of a two-day student leadership conference for gifted seventh- and eighth-graders.

We are also pleased to include two student essays devoted to the topic of passion. The essays were part of the applications for college scholarships CAG received this spring. Evan Brummel of Palm Desert, CA and Helena Hsieh of Long Beach, CA share their passions for music and art in their respective writings. And as a special added feature, we spotlight Tony Freitas, who has turned his passion for thrills and entertainment into the job of a lifetime.

Finally, it should be noted that two of this issue's writers will be major speakers at the next CAG conference. Look for Felice Kaufmann and Maureen Neihart in Sacramento. ■

Get the Conversation Rolling—Start With A Book

BY JENNIFER E. BEAVER

In our Long Beach home, we frequently discuss school issues. Is it acceptable to don your Invisibility Cloak for a good cause—when you've been strictly forbidden to wear it? What would it be like to be friends with Draco Malfoy, the school's nasty but fascinating bad boy? And which dorm would the all-knowledgeable Sorting Hat select for you—Gryffindor, for the daring and brave at heart; Hufflepuff, for the hardworking and loyal; Ravenclaw, for minds full of wit and learning; or Slytherin, where cunning folks will do anything to get their way?

Harry Potter fans will immediately recognize the school not as one of southern California's finest, but as Hogwarts School of Witchcraft and Wizardry—made famous by author J. K. Rowling. The people, places, and events at Hogwarts—and throughout the Harry Potter series—create fertile ground for enlightened conversation.

This is a good thing, because standard moral discussions are inherently dull. Given a list, most kids can clearly identify acts as good or bad. Telling a lie is bad; telling the truth is good.

Much more interesting—and helpful, in the long run—are discussions about those gray areas that perpetuate our lives. Is it O.K. to lie, for example, to protect a friend? And if telling the truth is good, why do we so often get in trouble for it?

In our family, we've found that certain books help get these issues on the table in a lively fashion. More than once, when my husband was reading the Great Brain series to me and our son, we stayed up way past bedtime talking about choices made by the books' characters. What we lost in sleep we more than made up for in understanding.

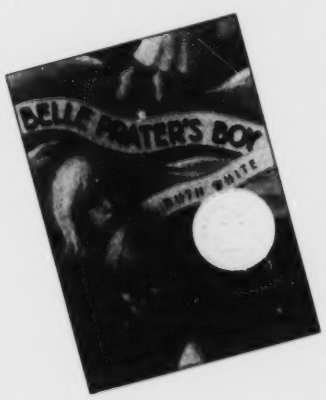
Discussion Secrets

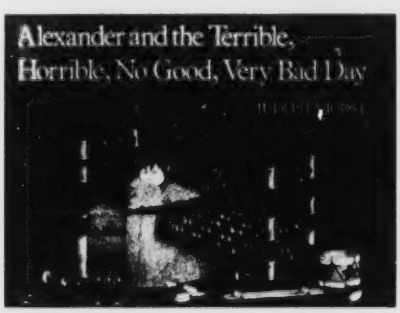
There are four secrets to successful discussions. First, find a book that both kids and adults like—preferably one where life is not always hunky-dory; look for opportunities to ask questions based on the book—not because you're trying to trip your kid up, but because you're genuinely interested; be honest in your own responses if you expect them to be honest with you; and if they tell you something you don't want to hear, listen—don't lower the moral hammer.

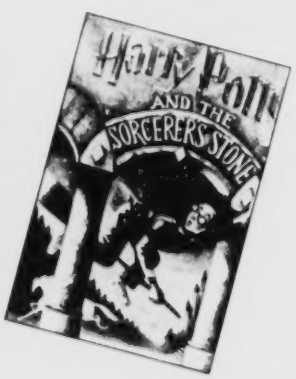
There are many great books to read aloud, or to read separately and discuss while riding in the car, doing the dishes, or tidying up the rose bed.

Resources

- *Some of My Best Friends Are Books—Guiding Gifted Readers from Pre-School to High*







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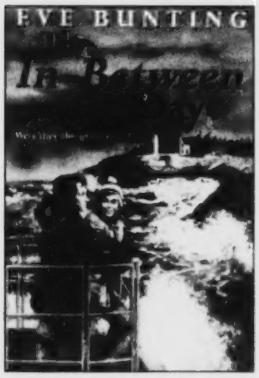

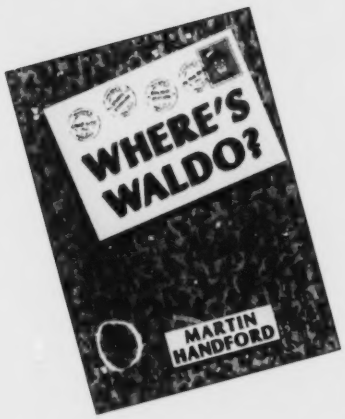

School—is a must-have resource. Written by Judith Wynn Halsted, it discusses the importance of books to gifted kids, provides overviews of important books for various age groups, and even offers discussion questions. It's valuable for parents and teachers searching for books that both entertain and raise important issues.

- *The New York Times Parent's Guide to the Best Books for Children* by Eden Ross Lipson, and Susan Luke (Editor). Please note that there is a new edition of this book coming out in November 2000.

Here are a some suggested book titles, many coming from Judith Halsted's book. Others are recommended by Jody Fickes Shapiro, owner of the Ventura bookstore Adventures for Kids. During the summer, Shapiro conducts parent/child book discussion groups for those fortunate enough to live near her business.

For the Very Young

Goodnight, Moon, Margaret Wise Brown

Are You My Mother?, P. D. Eastman

Where's Spot?, Eric Hill

Preschool: Two and Three Years Old

The Runaway Bunny, Margaret Wise Brown

Hooray for Me!, Remy Charlip and Lilian Moore

Tom and Pippo Make a Friend, Helen Oxenbury

The Little Engine That Could, Watty Piper

Four Years Old

Anno's Alphabet: An Adventure in Imagination, Mitsumasa Anno

Sir Cedric, Roy Gerrard

Where's Waldo?, Martin Handforth

Frederick, Leo Lionni

The Pooh series, A. A. Milne

Kindergarten to Grade Two

Feelings, Aliki

Opt: An Illusionary Tale, Arline and Joseph Baum

What Happened to Patrick's Dinosaur?, Carol Carrick

Jabberwocky, Lewis Carroll

Tomie de Paola's Book of Poems, Tomie de Paola

A Different Kind of Boy, Barbara Hise

Pippi Longstocking, Astrid Lindgren

Outside Over There, Maurice Sendak

Alexander and the Terrible, Horrible, No Good, Very Bad Day, Judith Viorst

Grades Three to Eight

The Harry Potter series, J.K. Rowling

The Dark is Rising series, Susan Cooper

The Great Brain series, John D. Fitzgerald

On My Honor, Marion Dane Bauer

The In-Between Days, Eve Bunting

The Giver, Lois Lowry (age 10 and up)

The Great Gilly Hopkins, Katherine Paterson

The Prydain Chronicles and Taran Wanderer, Lloyd Alexander

Grades Nine to Twelve

Speak, Laurie Halse Anderson

The Clan of the Cave Bear, Jean Auel

Fahrenheit 451, Ray Bradbury

I Am The Cheese, Robert Cormier

The Name of the Rose, Umberto Eco

The Lord of the Flies, William Golding

Steppenwolf, Hermann Hesse

Been Clever Forever, Bruce Stone

Slaughterhouse-five, Kurt Vonnegut

JENNIFER BEAVER is the Associate Editor for Parent Topics for the *Communicator*. She can be reached at: jebeaver@aol.com.

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Basic Skills in a GATE Program

BY ELAINE S. WIENER

The philosophical question concerning whether or not basic skills are needed for young gifted children surely must have evolved in an environment away from a classroom. The whole disagreement has been played out as though teachers and children were invisible participants. I often wonder if the argument has simply provided academic fuel for those who enjoy intellectual jousting rather than solving a real dilemma—a dilemma which should not exist.

This supposed "dilemma" has always been to develop a gifted student's potential while responding to a gifted student's resistance to fundamentals—a resistance which takes the guise of "boredom." It starts when the child is very young and leaps over levels of learning in what seems to be intuitive stages. Returning that child to a more elementary level creates guilt in parents and educators. This is most easily seen when a child dislikes learning the sounds and blending of /c/ /a/ /t/ when that child already can read "cat." The whole controversy about Phonics versus Whole Language could fit right here.

However, this either/or argument applies to all subjects. The same scenario exists in math where children can do very sophisticated problem solving. They resist memorizing math facts because memorizing math facts represents difficult work not related to logic which comes more easily to them. The argument, "This is boring!" replaces "I don't want to do this work." The hidden problem is the gifted child's ability to sense the adult's fear of boring the child. Knowing how vulnerable we are to the phrase, "I am bored" allows gifted children great power. The other problem is the child's natural inclination to display ability with which they are more facile. Why learn tedious sounds when one can read whole words? Why memorize basic math facts when one can intimidate adults with math logic?

The answer is that simple learnings now, unlock future, more sophisticated learnings later. Knowing how to unlock the sounds of all letters and their combinations enables a gifted child to read very difficult words as those words are encountered in his development. Knowing basic math facts provides correct answers to those obtuse math problems. We adults know this, but we often fail to meet a gifted child's resistance with the strength of insistence and explanation. The final answer is that the teacher provides an attitude—a lifelong mind-set—which teaches gifted children patience with smaller segments of wisdoms.

There is also no denying that a faster pace of teaching fundamentals is necessary. And it is always advisable to approach the lowest level skills with higher-level vocabulary or critical thinking or anything which would appeal to a gifted child's thirst for knowledge. This goes without saying; this has always been done in fine classrooms. However, sometimes the basic skills fall by the wayside. Pressure is applied from in-classroom and out-of-classroom educators and parents who insist upon appealing to the gifted child's need for higher level thinking and for a differentiated program. I very much doubt that any university professor, teacher training educator, or even parent has ever intended that basic skills be eliminated. The lack of emphasis has simply dissipated the existence of basic skills for gifted children as a topic. The lack of emphasis has also allowed teachers to pay lip service to basic skills, avoiding sufficient repetition to internalize and cement those skills for permanence. And so we are now back to the original "dilemma." How do we reinstate basic skills/basic facts to a gifted program without boring our gifted children?

1. We eliminate the stigma of "boredom" from all the adults' minds who work with gifted children. No basic skill is boring when taught well, with meaning and pizazz!
2. We make a law against the "B" word in the classroom and at home. No gifted child has a right to say he is bored when he has the potential to devise a way to learn any content in a unique, interesting manner. A gifted child also bears a responsibility for her learning.
3. We resurrect memorizing facts to a position of honor. Often, older gifted children hate to memorize because it's work. They can't rely upon their logic to see them through. However, young gifted children love to memorize such things as poetry,

"No basic skill is boring when taught well, with meaning and pizzaz!"

math facts, and lists of parts of speech. This natural inclination at this young age can create a lifelong habit of learning fundamental facts which provide evidence for higher-level discussions, not to mention some accurate calculations in those higher-level math problems. And older gifted children may have to be told that basic facts are the foundation to all learning. It isn't a choice.

4. Let's be sure we know what basic skills are. Teacher's manuals and new state standards certainly provide us with clear statements. There can be no excuse for ignoring them. We already have the skills to differentiate the basic curriculum; let's just remember that basic skills/facts are part of that CORE curriculum which is being differentiated.
5. Above all, reinstate a new status for basic skills in any teacher training vehicle, be it teacher workshops or universities. Polish it up with the wonderful newer phrase, "Foundation Skills." There is a revived elegance about that phrase. It sets the tone that basic skills are the foundation for all knowledge—the stones upon which great edifices of learning are built. And teach our new teachers a respect for these basic skills, especially for gifted children who will be our leaders in a future which so badly needs truth and facts behind the higher-level messages with which we hope they will lead. ■

ELAINE WIENER teaches a self-contained GATE class at Allen Elementary School in the Garden Grove Unified School District GATE Program, Garden Grove, CA. She may be reached at Allen School: 714-663-6228.

Reprinted by permission from the September 1999 issue of the *Communiqué*, the newsletter of the National Association for Gifted Children.

A Passion for Singing

BY EVAN BRUMMEL

Singing 'Stars' from the Broadway musical 'Les Miserables,' here is Evan Brummel from Palm Desert." As I walked on the stage my heart started to pound like Indian war drums. As I looked into the audience, all I could see was white. The lights were as bright as a rising sun. I heard my music and I started to sing as if I was Placido Domingo singing at the Metropolitan Opera House. At the end of my song the audience loudly acknowledged my performance and I was happy. I did what I came to do, but as I heard the other contestants I started getting doubtful. As they called all the contestants to the stage to announce the winners I started to feel nervous. Was my performance good enough? did the judges like me? "Fifth place goes to... Fourth place goes to... Third place goes to... Second place goes to..." As I looked at all the placing contestants I started to think, was I better than these contestants? Will I win? "First place goes to Evan Brummel from Palm Desert." I had won the California Teen Vocal Championships. As I received my trophy I started to see all of the excited faces in the audience and it made me feel happy that I had touched so many people with my voice. I feel that I had won because of my talent, my striving to be the best, my confidence, and my competitiveness.

School has now started and I am 17 years old and a senior at Palm Desert High School. I am very anxious to go to college and do the one thing I like to do the most—sing. I live in the desert in southern California so there are not too many opportunities for me to sing. There is a scarcity of quality vocal coaches where I live, so my mom drives me two hours away to Irvine where I have vocal lessons every other week. I owe most of my success to my mom. Even though our family doesn't have much money and my mom has recovered from cancer, she still helps me as much as possible to pursue my dream to be an opera singer. My mom is a dance teacher at the school I attend. I took one of her classes and I caught on really fast.

I owe my competitiveness to my dad. My dad introduced me to football. My dad and my older brother (now a senior at San Diego State University) both played football in high school and college, so I got into football because I wanted to be better than my brother and because I wanted to show everyone that singers are not sissies. I am now in my fourth year of high school football and it has made me very competitive. My sister (now a sophomore in high school) also dances and plays sports. I have been in the high school choir for four years. The school I go to has only 1500 students so we have to beg guys to join our choir. The majority of the choir has never sung before, so they learn slowly. I become very frustrated because they are not as serious and do not learn as fast as I do. When I made the All State Honor Choir, I felt right at home. Everyone there was serious about music and was just like me. I can't wait to go to a college where every singer is at the same level as I am. If this happens, I feel I will be happy and ready to take on any challenges that I may face. ■

EVAN BRUMMEL recently graduated from Palm Desert High School in Palm Desert, CA. He will be attending the Julliard School in New York this

My Love of Art

BY HELENA HSIEH

A vision emerges from the clouds. Like sunlight filtering through the mist, images begin to fill the dark void in my mind. I envision dreams of another realm. In my mind I see fantastic worlds of sun streaked canyons and gorges, of waterfalls and majestic snowcapped mountains, of green forests, and pristine lakes. I see fascinating people, enigmatic and handsome princes, regal queens, and exotic faces, all alive and full of color.

My excitement grows as I pick up a paintbrush, a delicate sable with soft black hairs, and dip it into a fresh dollop of paint. The luminous glow of afternoon sunlight emerges. Its warm yellow hits the sparkling blue waters. Towering mountains recede into the distance. Misty waterfalls tumble from the craggy mountainside into the shimmering lake. I can almost hear the roar of the waterfalls and feel the misty spray upon my face. A profusion of flowers spring up near ivy-twisted Greek pillars. I can sense a sweet scent from them.

My energy gains momentum with each thrust and swipe of the brush. Colors explode onto the white nothingness. I feel light and happy, carefree and clear of troubles. It is sublime.

After the initial explosion of creativity, I get into the technical aspects of my project. I think pensively of how the old masters, the impressionists, and other such landscapists painted. I opt for a luminous quality, and apply layers of transparent glazes. I incorporate everything that I have experienced and learned, from teachers, from books, from life, into my painting.

Suddenly, a horrid splotch of intruding brown appears, seeping through the loveliness, and my world seems muddy. I see this hindrance, a patch of mud in the midst of a colorful garden, as a hateful trial. Instead of throwing my brush down in frustration, I attempt to put my world back together. I tackle the hideous obstacle, patiently working the colors back. Finally the mud is gone, and my world is radiantly beaming back at me. I sit back tired, but content for the moment.

As I stare at my piece, I [illegible] an overwhelming love for art, for this way to capture a brief fleeting moment in time, and preserve it for generations to come. Tears even come to my eyes, for art means very much to me. It is my passion, my love, my life. I remember the first time I picked up a pen and started doodling on my parents' white couch when I was six years old. I was hooked the moment my pen hit the clean white surface.

I take pride in seeing the swirls and brushstrokes, fingerprints, and marks of my own. As I look at art, I experience nostalgia and euphoria. I wish I could talk to the wood nymphs, roam the misty moors, fly over ancient castles, visit crumbling ruins, watch sunsets galore, taste that scrumptious dew-bedecked apple. I feel lucky to take part in this legacy, this gift of putting images down and knowing that long after the artist is gone, the images will live on. I am taking part in something immense, something that will flow into the world and transcend myself. It is an extraordinary feeling to know that I can leave a part of myself in the world.

SELF PORTRAIT Watercolor, 15" x 20", top left

GARDEN Acrylic, 11" x 14"

BREAKFAST Pencil, 12" x 18"

Art has offered many great experiences and opportunities. For instance, last summer I participated in the Marie Walsh Sharpe Art Seminar, an exclusive invitation-only college-level art program at Colorado Springs, Colorado. I met and made friends with young artists from all over the United States. It was an exciting moment in my life. I also had the opportunity to be in the Ryman Program for Young Artists held at USC, and had the honor of exhibiting my works at the school, and at a big art gala held at Walt Disney Imagineering Studios in Glendale. In addition to these wonderful opportunities, I have entered and placed in many art contests and had numerous other exhibitions at galleries and coffee houses. Art has opened many doors for me.

My plans for my career are to be a graphic designer, attend UCLA and later Art Center. To me, this career is both part work and part play. I feel that being a designer will further my artistic and design capabilities, and most importantly, open up a whole new world of exciting possibilities in a field that mixes art and technology. The fact that computers and technology have revolutionized art and design makes me feel the need to be part of this advance in furthering artistic possibilities. I want to be challenged, both academically and artistically, to grow as an artist, student, and future designer, to further my means of communicating better visually, all this and much more. I will also continue to paint on the side. It makes me excited to think of my future career where I can combine what I enjoy and love to do the most—art and design.

In art I see imagination unlimited; I see the world, but most important of all, I see myself. ■

HELENA HSIEH recently graduated from Long Beach Polytechnic High School in Long Beach, CA. This fall she will be studying design at the University of California at Los Angeles; she is the daughter of Hank and Linda Hsieh.

BOOK REVIEWS

LEAD ON

By Bert Hagemann & Claudia Newman

(1999) Pieces of Learning, www.piecesoflearning.com
paperback, $12.95, 128 pp
ISBN: 1-880505-46-0

REVIEWED BY MARGARET GOSFIELD

Lead On is presented as a "how to" book for both educators and students. It is divided into four sections:

- Introductory information with preliminary thoughts and guidelines
- Leadership for educators
- Student leadership
- Student activities.

The most useful section of the book is part four which consists of a series of activities with step-by-step instructions and reproducible pages to distribute to students in a classroom setting. If you like worksheets, you'll like this book.

Notable among the activities are "What's your L.Q. (Leadership Quotient)?" which invites students to score themselves with yes, no, or maybe responses. The responses are weighted with "yes" answers receiving 5 points, "no" answers 1 point, and "maybe" answers 3 points. The questions are useful but since it is difficult to quantify leadership, the point system is questionable.

A better activity is the "Personal Risk Quiz" which helps students identify low, medium, and high-risk activities for themselves and recognize that what may be high risk for one person could be low-risk for someone else. Quiz items range from "raise my hand in class" to "question a test grade" and "attend a dance with friends."

Complementing this activity is a survey of "Threat Activities" with a follow-up of suggested action plans to practice overcoming risk-taking fears.

This section also has a number of reproducible pages of blank forms for daily, weekly, and monthly calendars and time management guidelines.

To sum up, section four has some useful and practical activities and guidelines worth considering. Turning back to the first three sections of the book, the reviewer found them to be mostly vapid and superficial. The "leadership stereotypes," "school administrators of the past," and "new leadership training institutions" do not offer inspiration. Humor in a leader is a valuable asset, but the attempt at humor here served merely to take up page space. Moreover, the material seems to be simply an eclectic compilation of presentations rather than a thoughtful sequence of ideas.

For the novice teacher just beginning to incorporate leadership training as part of classroom curriculum, this book has useful activities. For the advanced trainer, however, the book has little to offer. Luckily the activity section takes up the bulk of the book, encompassing 85 of the 128 pages. ■

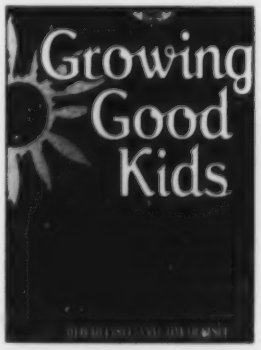
GROWING GOOD KIDS

By Deb Delisle and Jim Delisle with illustrations by Ken Vinton

(1996) Free Spirit Publishing, www.freespirit.com
paperback, $21.95, 157 pp.
ISBN: 1-57542-009-0

REVIEWED BY MARTHA FLOURNOY

As parents, we are always searching for and grateful to find anything that encourages, prolongs, or initiates communication with our developing children. At various stages, communication can fluctuate from easy to near impossible. *Growing Good Kids*, by Deb Delisle and Jim Delisle, provides effective, easy, thought-provoking, and fun activities that can begin or continue conversations with your children.



As teachers, our job is to ensure that our students acquire necessary academic skills. We are grateful to find activities which promote the acquisition of those skills and also motivate, stimulate, and develop our students' appreciation of themselves and regard for others. *Growing Good Kids* provides such activities.

The activities are founded on solid principles of learning. They invite students to think, feel, and react at the same time. They are based on the child's prior experiences and knowledge and the idea that children want to know more. The activities are open-ended and have no wrong or "unacceptable" answers. They are focused on a product which allows the student to demonstrate ideas and feelings in a concrete way.

The authors have "tested" these lessons in a variety of settings and circumstances. They can be modified to fit teacher and student needs. They are primarily designed for students in grades 3–8 in heterogeneous settings. The time, depth, and breadth are flexible. There is an evaluation piece which is holistic in nature. Each activity has clearly stated learning objectives, a product, related curriculum, materials, and a time frame. The activity is then broken down into steps. At the conclusion of each section, there are suggestions for extensions within the classroom or school and at home, as well as reproducible pages to be used with the activity.

The authors begin by describing situations and reactions to situations which create an "invitational" classroom or school. An "invitational" classroom or school is defined as one that creates a positive learning climate and environment, and invites effort by involving and motivating students. Students are invited to take risks and make mistakes.

The first activity is "Grate Misteaks." Too often teachers and parents do not acknowledge their own mistakes to children. In fact, we go to great pains to cover them up. By so doing, we throw out great teachable moments and valuable life lessons on strategies to deal with mistakes or failures. This, of course, plays into the perfectionism that many of our children develop.

This activity points out the many inventions and modern day things such as the frisbee, silly putty, sticky notes and coca cola were created by "accident" or mistake. Students are asked specific questions about their own personal experiences such as: Did you ever score a goal for the wrong team? Did you ever talk to someone you thought was a friend, only to find out it was a total stranger? Did you ever put on clothes inside out? These questions are followed by questions related to how the child felt and what happened. Responses are recorded on sheets of paper and may be displayed for all to see. The home extension encourages parents to "add to" the "grate misteaks."

Another activity is "Little Stories of Our Classroom." Within each class there are hundreds of stories; this activity affords an opportunity for some of those stories to be told. Students discuss similarities and differences, talk about assumptions and how opinions are formed, and create a class book. In the process, students conduct interviews and write stories about the people they interviewed. They are asked to be specific about the unique characteristics of each student. They share their stories and then compile a class book. The family extension is to interview and write about a family member and to create a family book.

In addition to 28 well-planned, user friendly, and highly effective activities, the authors have provided an excellent annotated bibliography of recommended resources, complete with how to find and obtain these resources. This book is a wonderful way to add to any parent or teacher's repertoire of ideas to assist in *Growing Good Kids*. I recommend it highly. ■

MARTHA FLOURNOY coordinates the GATE program for the Oxnard School District in Oxnard, CA.

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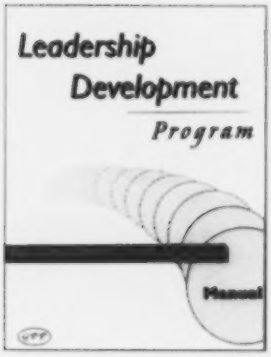
LEADERSHIP DEVELOPMENT PROGRAM
By Frances Karnes & Jane Chauvin
(1999) Gifted Psychology Press
www.giftedpsychologypress.com
paperback, complete kit $40; manual $30, LSI inventory forms $20, 96 pp.
ISBN: 091070332



The *Leadership Development Program* is a combination manual and activity instruction book and complements the *Leadership Skills Inventory* (LSI) which was also developed by the authors. Section I contains administration and technical information regarding the LSI including its history and background. The LSI is easy to administer, score, and interpret. Information regarding the samples used in developing the LSI as well as reliability and validity are included. Clearly labeled tables show the means, standard deviations, and internal consistency coefficients of the various groups used in building the standards. This is presented in a scientific and professional manner.

Both the inventory and the leadership program focus on nine areas of leadership:

- Fundamentals of leadership
- Written communication skills
- Speech communication skills
- Character-building skills
- Decision-making skills
- Group dynamics
- Problem-solving skills
- Personal development
- Planning skills

The *Leadership Skills Inventory* was originally published in 1985 and was subsequently used widely by students and teachers across the nation. It was revised in 1999 by Karnes and Chauvin and republished in its present form along with the revised manual.

The casual reader is likely to skip the first section and go right to Section II which includes suggested leadership instructional activities. There are 32 pages of suggested activities all referenced to the nine leadership issues listed and also referenced to the inventory skill items. Each skill area has from 6 to 21 suggested activities for students to practice leadership building skills. All are simple to implement and require few materials—often only chalkboard or writing materials. Others require student handouts which are furnished in the appendix. Occasionally the facilitator is required to furnish materials such as editorials from local newspapers.

The authors specify that the activities can be used with a variety of age groups from upper elementary to secondary and postsecondary, and in many settings including:

- School leadership classes
- Regular classrooms and special programs
- Youth associations
- Civic and social organizations
- Business and industry
- Leadership training and management

The authors assume that in whatever setting or age level, all participants will first take the *Leadership Skills Inventory* so that students assess their own current levels of skill; the facilitator can then proceed to pick and choose those areas most needing practice and which time will permit. It is not necessary to proceed through the activities sequentially. Furthermore, facilitators are encouraged to supplement the activities with films, guest speakers, and field trips whenever appropriate.

The activities have been field-tested and validated in six different states, representing a cross-section of the country: Louisiana, Ohio, Illinois, North Carolina, California, and Mississippi.

For both the novice and advanced facilitator who is implementing leadership training programs, Karnes and Chauvin provide a carefully thought-out and well-researched plan of action. It is a very useful resource if somewhat pedantic in its presentation. It is a valuable resource for any individual serious about promoting leadership skills in youth. ■

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amazon.com.

The Risky Business of Leadership

BY MAUREEN NEIHART

A key ingredient of leadership is the ability to take risks. To risk means to take a chance when the outcome is uncertain. Leaders cannot initiate change and persuade others to follow suit without stepping outside their own comfort zone. If one of our goals is to develop leadership in high potential youth, then we must train them to take risks. The ability to recognize and take risks provides the upward thrust for the expanding spiral of accomplishments that most leaders take on their way to high achievement (Campbell, 1980). We cannot afford to let this spiraling process happen haphazardly. Campbell (1980) suggests that people speed up the process by collecting experiences, trying a wider range of activities, learning a wider range of skills, meeting more and different types of people, and learning that a few failures are not catastrophic.

Systematic Risk-Taking (SRT) is a strategy that was developed specifically to promote healthy risk-taking behavior in high ability individuals (Neihart, 1999). The purpose of SRT is to develop skills and coping strategies for managing the stress and fears that come with leadership and high achievement. Accepting challenges and saying "yes" to opportunities at critical choice points in life requires a willingness to go out on a limb, to step outside one's comfort zone and try something when there is a possibility of failure or defeat. It is not uncommon for gifted students to avoid situations where they are not sure of success. An unwillingness or inability to take risks, however, is believed to contribute to unrealized potential and dissatisfaction (Kaufmann, 1992; Noble, Subotnik & Arnold, 1999; Walker & Mehr, 1992).

"Systematic Risk-Taking is about staying in shape for leadership."

The problem for some gifted students is that they become so accustomed to success without effort that they develop unrealistic expectations regarding what real challenge requires. Since they may have little experience with defeat, some youth overreact to it when they first encounter it. Most unfortunate is the case of gifted students who don't experience a setback until they're in college. In the worst scenarios, their long history of unrivaled success has not prepared them for the realities of defeat, and when confronted with their first disappointment some cave in and give up under the stress. They withdraw and retreat when they should be dusting themselves off and preparing to remount. Additionally, there are gifted youth who miss out on opportunities to expand their horizons simply because they are either unwilling or unable to take risks when they face critical choice points in their lives (Kaufmann, 1992; Walker & Mehr, 1992).

Categories of Risk-Taking

SRT proposes five categories of risk: intellectual, emotional, social, physical and spiritual. For high-ability youth, intellectual risks might include answering a difficult question, letting others know they are smart, or taking an advanced class. Emotional risks might include saying how you feel, crying in front of friends, or letting a good friend know you're angry with her. Examples of social risks for students can include going to a dance, sitting with a different group of peers at lunch, or asking to join a game at recess. Physical risks are often the easiest to imagine. Bungee jumping and skydiving always come to mind, but for some students, dressing out for gym is a risk. Running six miles when they've always run three, and learning a new sport are risks. Spiritual risks are harder to define, perhaps because they seem to overlap with social or emotional risks much of the time. Choosing to believe when you haven't before is a risk. Questioning one's beliefs is a risk. Faith is a risk.

People vary in how comfortable they are taking risks in each category. Some people, for instance, find physical risks very easy to take, but are much more threatened by social risks. It is human nature to avoid those activities perceived to be the most risky. The problem with avoidance as a coping mechanism, however, is that it tends to heighten the anxiety associated with an event. As a general rule, the longer a person avoids certain activities, the more frightening those situations become. Instead, what people need are strategies for identifying and mastering their fears.

Preliminary Discussion

Discussing the need for risk-taking and normalizing the anxieties people feel about risk is the starting point for helping students to examine their own behaviors. In what category is it easiest for them to take a chance? In what category is it the most difficult? Ask them to rank the categories from one to five, giving "1" to the category that is easiest and a "5" to the category that is most difficult or scariest. Talk about what it may be like to live in a family where everyone enjoys taking social risks when that's your hardest area. What if you're a kid who loves physical risks, and the rest of your family dislikes

those the most?

After students have ranked the categories of risk from most to least comfortable, they can begin to explore what they need to take various kinds of risks. Ask them to choose one category and brainstorm at least eight things that would be a risk for them in that category. Remind students that a risk doesn't have to be big. Anything that is a little outside their comfort zone, or causes them even a little anxiety qualifies. The aim is to get students thinking about a range of risks so that they can begin to understand how to plan for bigger challenges. Someone who doesn't like to swim doesn't begin by jumping into water that's over his head. He first learns to get comfortable being in the water. He spends time in shallow water learning to bob, float, open his eyes under water, and hold his breath. As his confidence and skill level increase, he learns to surface dive, masters a stroke in waist-deep water, and may begin to step out into deeper water. By taking a progression of small risks he is eventually desensitized to the anxiety of deep water and he develops the skills and confidence he needs to enjoy swimming. The same principles are involved in SRT. With practice, students learn how to think about big risks in terms of a series of successive smaller chances.

Steps in SRT

Invite students to discuss what they would need or want to take some of the risks on their list. Would it be easier to try if they did it with a trusted friend? Would it be less frightening if they were taught some skills first? Maybe putting a time limit on the risk would help, or watching someone else do it a few times. The goal is to develop the habit of asking oneself, "What would make this easier?"

The last two steps of SRT are taking a risk and processing the risk once it's been tried. Much of the learning that happens in SRT happens before and after taking the risk. From their list of ideas, students choose a risk to take, make a plan, and commit to giving it a try. Some will take very small steps outside their comfort zone, and others will be much more willing to challenge themselves. When students later share with each other what happened in their risks, the support they experience will spur them on to accept greater challenges. For example, after a semester of SRT in a high school seminar for the gifted, Greg decided he was ready to try some social risks, his toughest category. He made a long list of possible risks, and committed to confronting his fear of rejection and criticism.

Steps of Systematic Risk-Taking (SRT)

1. Rank categories of risk-taking
2. Brainstorm a selected category of risk-taking
3. Discuss ways to make the risk easier; make a plan
4. Take the risk
5. Process the risk-taking event

As students' confidence in their ability to master their anxieties and take risks grows, so will their motivation to try new things. The risk-taking becomes self-reinforcing, and the upwardly expanding spiral of leadership and achievement takes on an energy of its own. SRT is about staying in shape for leadership. Just as a competitive runner increases her distance, pushes to reduce her time, and challenges herself with varying terrains, so too must young leaders learn to make it a habit to continually seek ways to challenge and test themselves.

We cannot assume that high ability youth will automatically lead. Rather, we must provide learning situations that encourage leadership (Roach, 1999).

Using SRT in School and At Home

There are many ways teachers can use SRT in the classroom. For instance, through an analysis of historical, contemporary, or literary events, students can contrast passive, dependent responses with active, independent ones. They can identify individuals or groups who took risks and evaluate the costs and outcomes. SRT can be the context for instruction in research skills or math concepts. Students can collect data about the risk-taking preferences of diverse groups of people, comparing age, gender, and cultural differences, for example, and then calculate a variety of statistics to summarize their findings. They can use technology to analyze their data and to represent the conclusions graphically.

Parents can make SRT a family activity, with everyone having input and determining a risk to take together, or they can support each family member in his or her efforts to take individual risks. Family vacations are often an easy time to teach and model risk-taking. Families can also make it a game to take a small risk every day, or once a week, and talk at meal times about recent chances they've taken, and what they learned in the process. Such efforts create the expectation that risk-taking is a valued behavior and that mistakes are opportunities to learn. There is encouragement to take reasonable chances and to set personal goals and pursue them. Although it is tempting to pressure children to take risks that the adults believe will be beneficial, it is important to resist this temptation and instead allow children to determine for themselves what kinds of risks they want to take.

Gifted students need experiences that challenge their beliefs about themselves and others if they are to attain high levels of achievement. SRT forces individuals to think carefully about what they believe about success and defeat. It helps them to think about their goals in

See SYSTEMATIC RISK-TAKING, 37

LEADERSHIP OBSERVATION CHECKLIST

Name _____ Birthdate _____

School _____ Grade _____ Date _____

Below are characteristics frequently shown by students with leadership ability. Please read each statement carefully and indicate the degree to which you have observed the trait or skill in this student by placing an "x" in the appropriate column

PERSONAL TRAITS	Seldom or never	Occasionally	To a considerable degree	Almost all of the time
Takes initiative				
Takes the lead in group activities				
Influences the behavior of others				
Is sensitive to others' feelings				
Is self-confident				
Controls own emotions				
Respects rights of others				
Is a constructive member of a group				
Sets high standards for self				
Is respected by peers; others seek his/her ideas				
Is a risk taker				
Is energetic, enthusiastic, persevering				
Is responsible				
Has many new ideas or insights				
Is assertive				
Is diplomatic in group or peer relations				
Is organized				
Is flexible				

GROUP SKILLS	Seldom or never	Occasionally	To a considerable degree	Almost all of the time
Follows well				
Accepts responsibility				
Determines appropriate behavior				
Organizes others				
Directs activities				
Delegates responsibility				
Simulates actions				
Establishes the mood of the group				
Makes decisions in the best interest of the group				
Fosters team spirit				
Brings about group security				
Cooperates with others				
Works toward group goals				
Encourages the exercise of individual freedom				
Helps others				
Respects the ideas of others				
Copes with unpleasantness				

COGNITIVE SKILLS				
Knows what is going on				
Figures out what is wrong; shows others how to solve problems				
Handles abstract ideas and sees a broad perspective; sees whole while others focus on parts				
Projects into the future, seeing consequences of decisions				
Communicates ideas clearly and concisely				
Learns from personal experience				
Gauges appropriateness of decisions, directions, or suggestions and timing for them				
Learns from the experiences of others				
Makes individuals feel needed and productive				
Exhibits empathy for others				
Allows for the exercise of individual freedom				
Controls situations				
Displays firmness with fairness.				

From *Assessing and Identifying Students for Gifted and Talented Programs: Recommended Procedures*, a 1990 CAG publication, p. 21.

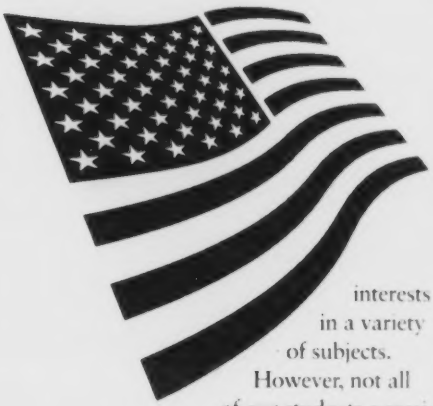
pas-sion (pash'en). n. 1. any emotion or feeling, as desire, joy, hope especially when of a powerful or compelling nature. 6. a strong or extravagant fondness, enthusiasm, or desire for anything: a passion for music. —Syn. fervor, zeal
Excerpted from *Random House Dictionary of the English Language*

Americana

Building passion and leadership through a

BY MARYA

The strong feelings associated with passion often characterize the students who enter our classrooms. They come with intense



interests in a variety of subjects. However, not all of our students experience the zeal connected with passion and enthusiasm for a particular topic. Therefore, it remains for us, the teachers, to structure learning experiences that evoke such enthusiasm. Passion as defined in the *Random House Dictionary of the English Language* promises joy and direction to those who experience it, and for those reasons it is an objective worthy of a teacher's attention.

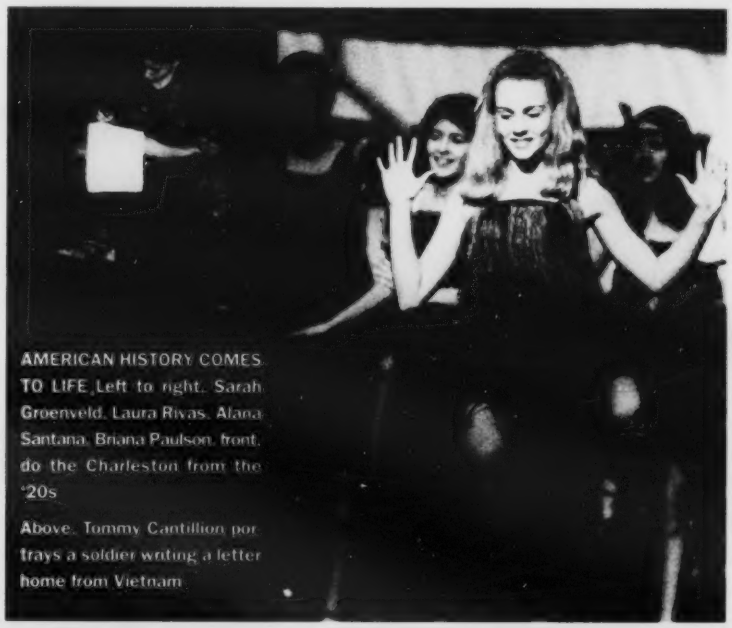
The question then arises—how does one nurture this characteristic of our gifted students and, indeed, all of our students? For the past 16 years, GATE students in an English/history team at La Colina Junior High have worked from the beginning of January to the middle of February on a project known as *Americana*. With eighth-grade history teacher Ted Best at the helm, this project has become an integral part of the culture of the school. The project involves the retelling of American history and the American dream in song, dance, and verse.

Beginning with a *God Bless the USA Medley*, the entire cast fills the stage for the first musical number. The opening musical number is followed by narration from an immigrant circa 1900. Following this narration, the performance flashes back to colonial times and then follows American history chronologically from prerevolutionary times to tableaus from the 1990s. Segments include speeches by Patrick Henry, Abraham Lincoln, Susan B. Anthony, Sojourner Truth, Martin Luther King, John and Robert Kennedy. Musical numbers include *Battle Hymn of the Republic*, *Indian Nation*, *I am Woman*, *Lida Rose*, *Wheels of a Dream*, and *Abraham, Martin and John*.

For six weeks the energy of 90 GATE students and 160 other eighth-graders is harnessed and directed toward a single goal—two evening performances for their parents, family members, and friends. An observer at these performances sits amazed as 13- and 14-year-olds work as a cohesive unit to bring American history to life. The enthusiasm of these students as they stand smiling into the spotlights amidst the thundering applause of a standing ovation, provides an excellent example of the emotions associated with passion. Their success also attests to their leadership ability as well as their ability to work collaboratively in a group.

Evolution of the Project

At its inception, *Americana* included only 60 eighth-grade GATE students and 30 members of the jazz band. It has evolved into a schoolwide project of more than 250 students. In addition to the GATE team and band, it now also



AMERICAN HISTORY COMES TO LIFE. Left to right, Sarah Groenveld, Laura Rivas, Alana Santana, Briana Paulson, front, do the Charleston from the '20s

Above. Tommy Cantillion portrays a soldier writing a letter home from Vietnam

includes all choral groups and other interested eighth-graders. However, the leadership and responsibility of the project remain with the GATE classes.

The organizational framework of the project provides important examples for teachers to structure learning experiences in such a way as to ensure student ownership thus promoting confidence and passion in our youth. From inception to final bow, the students are fully involved and responsible for every part of *Americana*. Beginning with research, students script as well as

Andrews Sisters or *The Times They Are a Changin'* recorded by Peter, Paul and Mary.

While a large number of students practice speech, song, and dance, another smaller group tackles the arduous task of selling, distributing, and accounting for over 1000 tickets. Set design and construction occur on two separate Saturdays, and seven students learn the intricacies of sound and lights. During the rehearsals, the stage crew works to coordinate props and cues as the final blocking is set. Finally, after just 12 hours of dress rehearsal, the

THE JAZZ ERA GETS AN ASSIST FROM THE JAZZ BAND Clockwise from center front, Michael Kiyoi, Roseanne Baker, Justin Reynolds

NO LIGHTS WITHOUT A GAFFER Below, Paul Zuniga puts the spotlight on his classmates

ANNA GRAY

student owned and operated production

plan the production. Any student who wants to try his or her hand at a particular task is encouraged to do so. Each student is required to tackle at least one segment of the production. While adults assist along the way, it is the students' production. Each student is encouraged to try things never tried before. As a result, students who never dreamed they could write, organize, dance, sing, and perform, find that they can.

For example, the first Saturday of January finds more than 100 students, boys as well as girls, in La Colina's cafeteria learning the basic steps of the Charleston, swing, and the hustle. These dancers practice every Monday night for two hours and every Saturday for three hours until the time arrives for dress rehearsal. If passion can be measured in sweat and sore muscles, these students provide a benchmark as they work to perfect the complicated dance steps. In addition to learning dance routines, students memorize speeches and long lines of narration. Others practice musical numbers such as *Boogie Woogie Bugle Boy* recorded by the The

students are ready for the curtain to go up.

The final production results not only in a thorough understanding of American history from a new perspective, it produces an impressive degree of confidence in students. Students who never dreamed they had talent for performance or leadership find that they do. Pride in product and self takes on a new dimension. For many, a newly discovered passion for leadership and performance is born.

Classroom Emphasis

As preparation for production advances, teachers in the classroom place emphasis on participation, appreciation, and the importance of each student to the whole. The script is studied to find examples of change, the year's universal theme. Song lyrics are analyzed in English class, as are speeches. During the debriefing process which follows the production, students formally recognize those who made their success possible. They write letters of appreciation to other class members. Responding to the quote by John Dewey, "Not only do we learn from our experience, we learn from discussing our experience," students work in small group to analyze what they learned. In addition, they write an analytical paper

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on change, as they now understand the concept and its concomitant generalizations based on their experiences with the production. The thesis of a student's paper may relate to change as it is illustrated in one or more periods of American history or change as experienced personally as a result of the production.

STUDENTS TAKE THE SPOTLIGHT ON STAGE, BUT TEACHERS PROVIDE SUPPORT BEHIND THE SCENES Clockwise from center front: Radu Azdril, music director; Maryanna Gray, language arts; Brian Slotnick-Lastrico, theater arts; Ted Best, history; Melissa Ewart, GATE core (English/history); Shannon DeGroot, chorus

For many, *Americana* proves to be a life-changing time in their lives. The passion they feel during the project pervades all that they do, and it spills over into other class activities. For many students the passion and leadership skills are reflected in activities pursued in high school. At the very least, the experience is remembered by most as the high point of their eighth-grade year. And teachers feel satisfaction in promoting an activity with such positive results. ■

MARYANNA GRAY teaches language arts at La Colina Junior High School in Santa Barbara, CA. She also serves as the GATE Coordinator for the Santa Barbara High School District. She can be reached at: maryannagray@hotmail.com

REFLECTIONS ON AMERICANA

Americana was a creative way to get junior high students to learn about American history. I did not realize until asked to write the culminating paper how much I had learned. *Americana* was a good experience. It allowed me to take part in a project where I was in charge of different things. Our hard work turned into something truly incredible.

Jessica Haro, 9th grade

Being able to live out history, allowed me to learn what it was like for people in the past by reading their words—it also gave me confidence to be in front of people.

Michael Ortiz, 11th grade

For the first time in my school career, I learned how to do a big production on my own. In addition, I learned a great deal about American history.

Andrew Cox, 9th grade

The main value was experiencing a growing confidence as a person. It also taught me to work well with others and to realize the pride associated with hard work on a successful project.

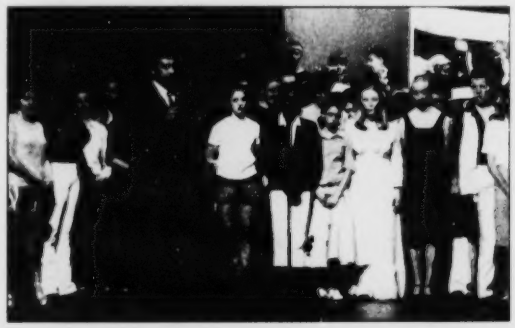
Margy Hannay, 9th grade

What I learned was the importance of working together, of cooperating and making sure everything goes right by making sure everyone does his job. I learned how important it is to work united. The most important lesson was that everyone learns what it feels like to make something come out the way you want it to.

Jorge Rodriquez, 8th grade

To this day my kids still talk about *Americana*. This integrated learning experience was the high point of their junior high school experience.

Eric Sonquist, parent



Year in and year out it is the most effective way to bring history and learning to life. It personalizes the history of our country in such a way as to make it unforgettable. In addition to developing academic skill, it builds organization, time management, cooperation, respect, and responsibility. The value of this project goes on and on. Besides that, it is a lot of fun for every student who takes part.

David Ortiz, Principal of La Colina

The Roots of Integrity

Gifted Traits, Gifted Truths

BY MARY-ELAINE JACOBSEN

Integrity, morality, ethics—we hear these terms all the time in connection with gangs, school violence, bad behavior on the part of elected leaders, ethnic cleansing, and hate crimes. We are deeply disturbed when morality seems to have disappeared and "all is fair" becomes the standard of conduct. But for most of us, and for researchers and psychologists as well, nailing down exactly what we mean by integrity or morality is like tying to catch sunshine in a bottle.

Integrity is what we hope for when we say: "I want my child to grow up to be a *good person.*" Right vs. wrong has always been a part of the human experience. For adults and children alike, integrity is often at the center of the most complex and challenging dilemmas we face. Yet *thinking* in an ethical way about "what should be" is often far easier than *acting* in an ethical way to bring about change.

Doing what we believe to be good and true can be risky because it puts our beliefs and our acceptability on the line. Moral acts require us to reach inside of ourselves and then act outside of ourselves. True integrity is righteousness without being self-righteous, and serving without being self-serving. Such high-level values and daring acts may seem out of place in the lives of young children. We may prefer to think of their growing-up experience as lighter weight than all that, wishing they could simply play and learn and skip and sing their way into adulthood. But that is not possible if we intend to raise and educate people of integrity because morality stems from the conscience, and conscience begins to develop at a very early age.

Learning Moral Lessons

Throughout life we learn through experiences that provide us with moral lessons. We have choices to make, some good and some not-so-good, as we construct our inner rule book. Though conscience begins as a set of minor dilemmas and consequences, it eventually becomes our internalized system of self-rule and sets our expectations of others. It carries with it a sense of responsibility. Many issues of conscience fade into the background as they become part of our automatic responses. For instance, most of us do not need to think much about whether or not we will stop by the local convenience store on the way home from work for a quick robbery. It's simply not in our thinking patterns if we have made a moral decision that rules out that kind of behavior.

"nailing down exactly what we mean by integrity or morality is like trying to catch sunshine in a bottle."

Yet especially for gifted children, moral conflicts and issues of unfairness are not so automatic or integrated and are not easily tolerated. They are keenly aware of both great and small injustices and can be deeply wounded by situations that seem clearly unfair, particularly if someone is harmed and no one does anything about it.

Juan was the "self-selected" playground monitor mostly because other students merely stood by when fights broke out or unpopular children were not allowed to play. Even though he was a small-ish, rather shy third-grader, when someone was being picked on Juan was the first to zoom in to calm things down. He regularly succeeded in convincing the older bullies that they would lose face if they beat up someone who couldn't fight back. He also found ways to slip the "unwanted" kids into games and talk to them openly to model acceptance. When an astute playground coordinator noticed Juan's benevolent and courageous acts, she asked him why he did it. Juan replied, "I had to. Nobody else seemed to care."

Juan's moral awareness and bravery in the name of justice is typical of gifted children. From a very early age they have a tremendous sense of right and wrong, and are often deeply troubled by issues of injustice that go unanswered. Particularly when no one else, not even the adults in their lives, seem bothered by what tweaks their sense of unfairness, they feel somehow directly responsible. The internal dialogue goes something like this: "What is going on here? Hey! That's wrong! Somebody has to put a stop to this! Why isn't anybody upset? Who is supposed to fix this? Isn't someone in charge here? Hey! Who's going to fix this? ... It must be me!"

First Nature Traits

Where does the gifted child's unusual sensitivity to moral issues come from? What tugs at these youngsters to act as the guardians of fairness? Through my years of research, education, parenting, and counseling the gifted I have determined that there are two core traits that make up the rootstock of integrity. I call these central markers of giftedness First Nature traits:

(1) heightened receptivity, and (2) the urge to perfect. We often talk about how things become second nature to us over a period of time. In this case, the gifted don't experience any real adjustment period. They are hardwired from the very start with these two traits.

Gifted children perceive the world in fundamentally different ways than other children. It is as if their sensory apparatus is more finely tuned to detect input that others either filter out or ignore. This heightened receptivity is present from the earliest stages of development and later gives rise to the urge to perfect. Because gifted children perceive in ways that are different in kind and degree than others, their heightened receptivity makes them hot receptors—capable of automatically detecting even the slightest change in their external environment. They also possess an innate sense of how things should be and not just how they are. In other words, they have an innate urge to perfect. We often see these two traits displayed in children who aren't satisfied with things until they are *just so*.

And indeed, for the gifted, striving to make things better, or *just so*, is more than a trait, it is both an unavoidable drive and a need. Unless you've experienced this urge to perfect and are a hot receptor yourself, it is difficult to make clear how fundamentally a part of a gifted person's core personality these First Nature traits are and how much they affect their overall development. One way to think about First Nature traits is to compare them to handedness. Unless we've suffered some accident that has rendered our dominant hand useless, we don't think much about the subject. Yet, like the First Nature of the gifted, our handedness has a major influence on how we negotiate our way in the world. And like those well-intentioned teachers and family members who once forced left-handers to abandon the use of the naturally dominant hand, gifted children often experience the same kind of treatment.

A Sense of Ethical Commitment

Consequently, for the gifted who see through things to the core, who notice everything, and who feel compelled to react to everything, telling the *truth* and doing whatever it takes to set things *right* is far more than a conscious choice. Many gifted children and adults I have worked with talk about their powerful sense of responsibility and ethical commitments as both a gift and a burden. I recall one teenager's admission who as a class president took an unpopular stand and sided with the administration instead of pushing for student demands:

> Being class president was great up until now. But sometimes I just wish I could get rid of all these convictions! ...No, not really; I know I have to do what I think is right. But you know, at times like this a part of me wishes I could be apathetic or a wimp or something, so it doesn't always have to be me carrying the banner.

We see outward expressions of the First Nature hot receptor and perfector in their intolerance for unfairness and demands to have

See ROOTS OF INTEGRITY, 35

TABLE 1 First Nature Traits of Giftedness

First Nature Traits as Roots of Integrity	Foundations for Excellence in Adulthood
Deep concern for others	Humanitarian benevolence
Skeptical of pat answers, digs for truths	Highly evolved problem-solving skills
Intolerance of unfairness	Moral leadership
Quick in-depth understanding	Original thinking and constructive influence
High energy and zealous effort	Breakthrough ideas; perseverance and endurance in the face of adversity
Sensitivity and excitability	Empathy, compassion, responsiveness to the needs of others; bridge builder who motivates and elicits cooperation
Intuitive; sees through the veneer	Insightful, able to detect falsehood; authentic; development of strong inner resources
Perfectionism	Commitment to, and willingness to hold out for, the ideal; potential for world-changing contribution
Driven pursuit of goals	Wisdom and self-actualization
Radical ideas	Autonomy and courageous revolutionary acts
Passion for puzzles and paradox; powerful need to know	Visionary research and discovery

Excerpted from *Liberating Everyday Genius: A Revolutionary Guide for Identifying and Mastering Your Exceptional Gifts*. (Ballatine, 1999) © Mary-Elaine Jacobsen, Psy.D., all rights reserved.

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ACTIVITIES TO ENHANCE THE DEVELOPMENT OF MORAL LEADERS

Excerpted from ***Counseling the Gifted and Talented*** edited by Linda Kreger Silverman (1993)

1. Expose students to the theories of Dabrowski, Kohlberg, and Gilligan as well as similar literature that would help them form ideals of leadership toward which they could strive.
2. Have students examine values, ethical principles, and philosophical systems.
3. Give them opportunities to discuss ethical issues and come to their own decisions.
4. Offer them the opportunity to construct their own moral dilemmas.
5. Provide opportunities for them to internalize caring values by making community service a part of their curriculum or extracurricular activities.
6. Encourage emotional sensitivity in gifted young men and women through counseling seminars and discussion groups.
7. Believe in their ideas. Don't try to talk them out of their "unrealistic" expectations.
8. Help them learn how to set priorities so that they discover which are their most important goals.
9. Support their courage to stand up for their convictions, despite the blows to self-esteem they might sustain from others.
10. Give them books to read and films to watch to familiarize themselves with moral leaders so that they have appropriate role models. Explore with them humanitarian values and the lives of individuals dedicated to service.
11. Assist them in designing projects related to social and moral issues (e.g., writing research papers; developing films, videotapes, or plays; conducting panel discussions; using an art medium such as painting or sculpting to represent a contemporary social ill; planning strategies for raising the consciousness of their community with respect to a particular concern.
12. Help them critically examine the historical development of philosophies and the effects of these values on the development of societies.
13. Introduce them to the contributions of the inconspicuous and unsung who show admirable qualities and lead worthwhile lives (e.g., parents who sacrifice for their children; disabled individuals who lead productive lives; VISTA and Peace Corps volunteers who leave comfort and security in order to help others).
14. Examine with them moral issues shown on television, seen in the newspapers, or found in the community.
15. Encourage them to attempt to solve some of the problems confronting society and share these alternatives with civic leaders.
16. Employ simulations, role play, or perspective-taking exercises. Focus on different viewpoints in everyday interactions; have the teacher and students share their feelings about interactions, events, or activities.
17. Involve them in group dynamics activities in which children learn to interact cooperatively with each other, respect each other's rights, and gain a sense of social responsibility.
18. Have students establish their own code of rules for behavior.
19. Conduct philosophy seminars in which students explore the principles of moral reasoning and discuss how individual values influence society in positive ways.
20. Have students participate on an equal footing with faculty members in decision making.
21. Model caring behaviors.
22. Help students become activists by engaging them in the study and solution of real-life problems.
23. Encourage students to read newspapers so they can begin to see how they and their communities are not isolated from the outside world; provide opportunities for them to share their perceptions and questions with others on a regular basis.
24. Network students with gifted children from various countries.
25. Encourage gifted students to think about the moral and ethical dimensions of the subjects they study and to raise questions of conscience regarding content.
26. Allow students to develop and discuss their own images of service and reflect on the consequences and benefits for themselves, others, and communities.
27. Give students opportunities to think about their role in the world. "What impact could they make? What impact do they want to make? What impact does the world have on their lives? They need the tools to make an impact on their own destiny and the ever expanding interrelatedness of the destiny of everybody on the planet." (Roeper, 1988)

These activities are *from Counseling the Gifted and Talented*, edited by Linda Kreger Silverman (1993), pp. 115–116. The book is available from Love Publishing Company, 9101 E.

I'm a noun, not an adjective

Nurturing Leadership in Gifted Young Women

BY HILDA C. ROSSELLI

Today's gifted young woman faces a myriad of challenges, many of which are the property of all young females struggling to become adults in today's often volatile and violent culture. It's true that young women are impacted by the same sociocultural factors as young men, such as poverty, violence, illiteracy, and substance abuse. However, the outcomes differ for young women as they are often in the role of victims. This combined with society's history of differential treatment of men and women and our country's inequitable treatment of race and class, creates a complex scenario for young women that is further acerbated when variables of ability and talent are involved. Thus, before looking specifically at what is needed to help bright young women develop, I want to first examine the state of life for young women in general.

Differential Treatment in Schools

In the wake of national reports produced by American Association of University Women (AAUW) and David and Myra Sadker's research on teachers' differential treatment of boys and girls, the characteristics and needs of girls have fortunately become more of a focus in the field of education and policy. These studies not only have provided fresh insights on gender equity in school settings, but they also have pointed to the need for fostering academic achievement in girls, particularly during their adolescent years.

In the AAUW 1992 study entitled, *How Schools Shortchange Girls*, 3000 girls, ages 9-15 were surveyed and the following findings emerged:

- Girls show a dramatic decline in self-esteem during these developmental years.
- By high school only 29% say they are happy with themselves as compared to 46% of boys. This pattern is reversed when boys and girls start school.
- Boys are encouraged to be adventurous and ambitious, "Boys will be boys." We expect girls to be nice, neat and well-behaved. (As one popular magazine stated, "Boys learn that school is a place of opportunity. Girls are taught that school is a place of constraints.")

In Myra and David Sadkers' 1994 study, trained raters observed in more than 100 fourth-, sixth-, and eighth-grade classrooms in inner cities, rural areas, and affluent suburbs and found that:

- Boys call out in class eight times more often than girls.
- Girls receive less time, less help, and fewer challenges.
- Boys receive praise, correction, help, or criticism from

teachers more often than girls who often are told "O.K."

- The area on the playground where boys play is 10 times larger than where girls play: "Girls huddle along the sidelines, on the fringe."
- While the same number of girls and boys now take algebra and geometry, more boys go on to take calculus.

Achievement /Aptitude Scores and Career Paths

Recent reports indicate that gender differences on achievement tests are diminishing; however, the picture still is in need of fine-tuning. Although test developers have worked to eliminate item bias and encourage girls' participation in math and science, bright males still score higher than bright females, particularly in areas involving math. Likewise, the new AAUW report released in late 1998 reports that boys still outscore girls on Advanced Placement (AP) exams as well as math and science tests on large-scale exams, and they outnumber girls in physics courses. In addition to calling more attention to the need for examining how girls learn best in the mathematical area, these data have also fueled concern about the underrepresentation of females in the math-science pipeline, particularly those areas that involve physics and engineering.

Adults working with adolescents need to be aware of these patterns and trends. Bright females may decide to enter fields other than the physical science areas (where the data points out the most glaring absence). This is not of concern as long as these bright young women are aware of their own potential and their full array of options. Counselors should seek to expose female students to a variety of career areas in ways that allow them to assess their own aptitudes and interests before selecting from the growing number of summer gifted programs offered and specialty programs available through magnet schools.

Technology

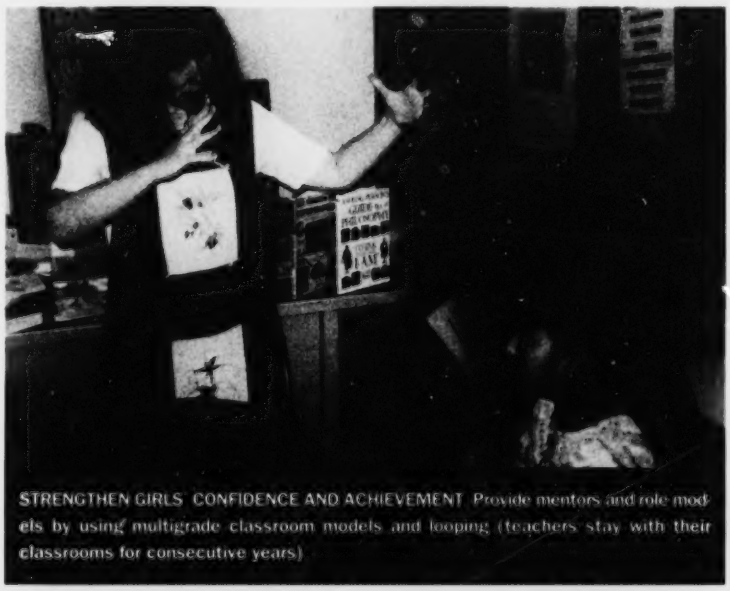
Computer technology is the newest area that appears to reflect gender differences. The most recent national report released by the AAUW, *Tech-Savvy: Educating Girls in the New Computer Age* presents a disturbing array of statistics. Girls represent 17% of the computer science AP test takers, and less than 1 in 10 of the higher level computer science AB test takers. Women receive less than 28% of computer science bachelor's degrees, down from a high of 37% in 1984. In fact, computer science is the only field in which women's participation has actually decreased over time. Women make up just 9% of the recipients of engineering-related bachelor's degrees.

Girls are more likely to use computers in school for clerical and lower level entry skills and as they progress through high school, they feel less confident than boys in using computers. One hypothesis offered to help explain this disparity revolves around the nature of many computer-based toys and video games. Sharon Schuster, president of the AAUW Educational Foundation reminds us: "Computer games don't have to be the virtual equivalent of GI Joes and Barbies. We have to think less about 'girls' games' and 'boys' games' and more about games that challenge our children's minds. When it comes to computer games and software, girls want high-skill, not high-kill."

Career Counseling and Mentoring Needs

Although girls seem to be attaining higher grades than males throughout school, it still prevails that girls express lower educational and occupational aspirations than male students. For many bright young women the choices they make during their late adolescent years can create clear limits on their achievements as adults. Both the U.S. Department of Education and the U.S. Department of Labor have clearly shown that males who achieve a lower level of degree than women are still more likely to be paid more than the same women. Occupational choice can still be more influential in determining wages than one's level of education. Nonsexist counseling and mentoring is needed to help young women

See I'M A NOUN, 37

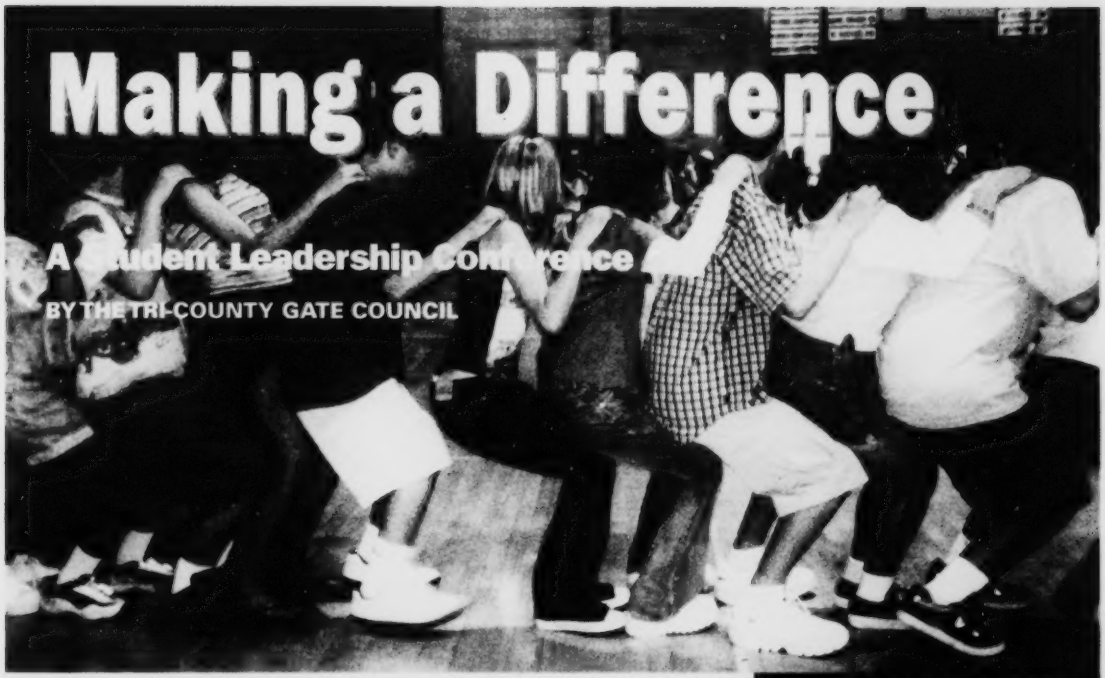


STRENGTHEN GIRLS' CONFIDENCE AND ACHIEVEMENT. Provide mentors and role models by using multigrade classroom models and looping (teachers stay with their classrooms for consecutive years)

Making a Difference

A Student Leadership Conference

BY THE TRI-COUNTY GATE COUNCIL



BUILDING TEAMWORK AND TRUST During June Taylor Wilson's Leadership Alive session, 130 students attempt to successfully "lap sit"

It's Thursday and the evening twilight deepens outside of Porter Hall; the air is full of excited voices as 130 seventh- and eighth-graders meet for the first time in a human scavenger hunt. The scene is the annual student leadership conference held each May at Westmont College and sponsored by the Tri-County GATE Council. Students have come from a region stretching 150 miles along the southern California coast and representing mostly medium to small size school districts. They are embarking on a two-day adventure with little notion of what is to come.

MAKING A POINT Jane Taylor Wilson makes a point by putting a needle through a balloon without popping it

On the edge of a cement planter box a young seventh-grader sits with tears streaming down his face. An adult chaperone is nearby trying to comfort him, but with little success. He says there are several other students from his school, but none are his friends.

Finally the tears subside, and Carlos sits quietly. The small group councils are then formed and Carlos goes off to meet with his adult facilitator and fellow council members. He takes no part in discussion, placing himself away from the group as much as possible. The facilitator comments later that Carlos volunteered only one brief comment; but at least there were no more tears, so we decided not to call his parents to take him home.

The next morning Jane Taylor Wilson engages the entire group in a variety of activities from her dynamic Leadership Alive repertoire. The students sit on the floor of the gym with Jane at center front. Carlos positions himself as far from the other students as possible, though he does follow directions and participates in group activities. The morning flies by as students interact with Wilson and their fellow conference goers.

For two days students and facilitators tackle challenges requiring skill and ingenuity, cooperation, and team effort. They determine council rules to abide by during the conference, analyze logic problems, participate in trust-building activities, and create and execute short skits for "Friday Night Live" among many others.

All too soon it is Saturday and everyone is back in Porter Hall for the closing session of the conference. The facilitator comments on how much has happened in less than 48 hours: new friendships have been made, students have tested their skills, and reflected on their strengths and goals. Now students are invited to share what they have learned about themselves and the leadership goals they have set for their return to home and school.

One by one students stand and courageously speak in front of the entire group. Many are truly elo-

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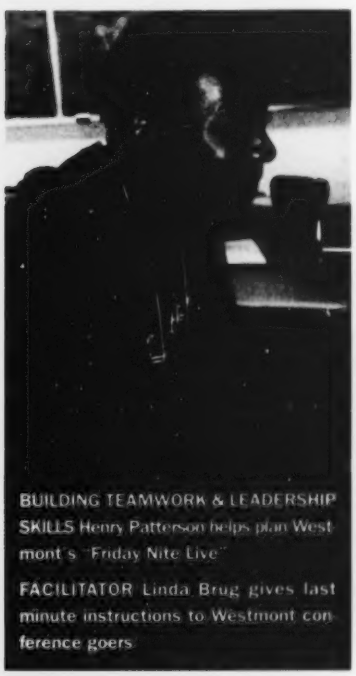
quent and inspire us by their sincerity and depth of expression. Finally it appears that all who wish to speak have done so, when far across the hall a small boy stands. We hold our breaths as we see that it is—Carlos! In a small but sure voice he tells the group how much he has gained through his experience at Westmont. The little boy with tears streaming down his face has made giant strides forward in a very short time.

Planning the Conference

The Tri-County GATE Council has held an annual student leadership conference for ten successive years. The council consists mainly of district GATE coordinators, but parents and teachers participate on a regular basis as well. The conference is a large undertaking, involving 12–14 school districts, 130 students, a staff of one primary facilitator and 25–30 volunteer educators and parents. Council members believe that we must provide training for our brightest youth if we expect them to take the leadership roles we envision for them in the future. The goal is not merely to develop individuals on a personal level, but to ensure the positive development of society.

Planning the event is an ongoing activity. Next year's conference is calendared with the college immediately after one conference ends. Conference planning has a place on each agenda of the council's monthly meetings, and newcomers are briefed as to what it involves. With the exception of the primary facilitator and some clerical assistance, all adults volunteer their time. The $110 student registration fee is structured to allow us to come out even after paying for supplies, college dorms, and food. It also allows for a limited number of



BUILDING TEAMWORK & LEADERSHIP SKILLS Henry Patterson helps plan Westmont's "Friday Nite Live"

FACILITATOR Linda Brug gives last minute instructions to Westmont conference goers

What Westmont Meant to Me

BY KELLY SMITH

As a scared, meek eighth-grader with a tall, pudgy frame and an unruly mop of red hair, the idea of a leadership conference did not sit well with me. Why should I go? What could I possibly learn? As I found out, I discovered what I was truly capable of. At Westmont College, I discovered that there were kids just like me who were just as frightened as I was about my future and my ability to succeed in a scary, unforgiving world. They all had similar fears, and expressed them beautifully. For the first time, I met kids who could relate to problems specific to gifted children. They all had experiences similar to mine, and they all dealt with their problems differently. They offered their support, and I became aware that I was not alone in this world.

At the end of the conference, I stood before all those kids just like me, and expressed my gratitude for the gift they had given me. I was no longer afraid to risk embarrassment in the pursuit of a dream. Ten years later, I am still looking ahead. I have achieved more than I ever thought possible, and my life is just beginning. I can trace my life back to that single moment, frozen in time. Had I not discovered the benefits of leadership, I would not be where I am today.

KELLY SMITH attended the Westmont leadership conference in 1993; he went on to Agoura High School assuming leadership positions in many areas and winning numerous honors. This fall he will be a senior at Claremont-McKenna College and serve as a Resident Assistant; he will graduate with a dual major in economics and literature. He serves on the Student Senate, writes for the school newspaper, and has been active in radio and drama.

scholarships for students who would not otherwise be able to attend. Participating districts use a variety of methods to cover registration fees including: conference GATE funds, local scholarships, and parent contributions. Each participating district must designate a local conference coordinator to ensure that all provisions are made for the students coming from its district (see sidebar for local coordinator responsibilities).

In January, instruction packets are distributed to coordinators of participating dis-

Facilitator Charles Park helps Vance LaVizo adjust costume for skit

Participating District Schedule

January 15	**Packets sent to districts**
January 31	**District request to participate forms due**
February 15	**District allotment notice sent**
March 1	**Tri-County scholarship verification form due**
April 1	**Student registration packets due**
April 1	**Adult participation forms due**
April 30	**Confirmation letters sent to students**
April 30	**Confirmation letters/ instructions sent to adults**
May 18–20	**Student leadership conference at Westmont**

STUDENT LEADERSHIP CONFERENCE FORMS

A District request to participate
B Student eligibility and selection guidelines
C Conference notice (optional)
D Adult facilitator and chaperone guidelines
E District adult participation form
F Tri-County Scholarship guidelines and verification
G Parent information letter
H Student registration form
I Student medical form

RESPONSIBILITIES OF DISTRICT COORDINATORS

January–February

1 ***Arrange for student selection***—Provide Information to staff members (teachers and/or counselors) most likely to have knowledge of students who are eligible and who would benefit from this experience. Determine process for selection of students.

January–March

2 ***Recruit adults***—Each participating district is required to provide volunteer facilitators and chaperones who will attend a training session. They will be notified of the training date and location by the conference organizers.

1–5 students requires 1 adult
6–10 students requires 2 adults
11–16 students requires 3 adults
17–23 students requires 4 adults
24–30 students requires 5 adults
31–35 students requires 6 adults

January–May

3 ***Request approval***—Follow district policy for administration and school board approval for student participation in this conference.

January–March

4 ***Ensure fee payment***—Identify and verify sources for payment of conference fees and make necessary arrangements. Sources of funding might include: GATE funds, other district funds, parents, organization scholarships, grants or a combination.

January–March

5 ***Apply for Tri-County scholarship***—Students must meet eligibility criteria and only one scholarship is available to each participating district.

February & March

6 ***Communicate with parents of nominated students***—Photocopy and send information letter to parents of selected students along with the conference registration and medical forms.

March

7 ***Collect forms and payments***—Review student registration and medical forms for completeness and verify payment.
8 Keep list of interested students.
9 Keep a waiting list if more students are qualified to attend than the allotted spaces for your district. Conference organizers will contact you if additional spaces become available.

March–April 1

10 ***Send forms and fees***

tricts, who in turn disseminate registration forms and information, enlist adult volunteers, collect forms and payments. Details of registration, facilitator, and room assignments are made throughout April, and students receive their confirmation letter with conference instructions by late April. The council spends part of its May meeting putting together student and facilitator packets. (See the sidebar for additional details.)

Council members, who sponsor the conference year after year, contribute much time and considerable hard work. Thirteen hundred students have now benefited from this leadership training opportunity, and each year they ask for two changes: 1) Please make it longer. 2) Let us come back next year.

Each year we have to decline their requests. In order to permit as many students as possible to participate, students can attend only once (there are always waiting lists), and the volunteer facilitators need some downtime before going back to work on Monday. But even though we are tired, there is great satisfaction in knowing that we have made a difference so that students can too. And perhaps Carlos symbolizes it best: Carlos arrived frightened and uncertain; by Saturday he had gained confidence and courage. Carlos stood up and spoke.

Special thanks to Anne Bensen of Oxnard School District, and Lyn Carmen of Santa Barbara High School District for their vision and leadership in initiating the first conference ten years ago.

The TRI-COUNTY GATE COUNCIL is an affiliate of the California Association for the Gifted and represents CAG's Pacific Region. Current officers include: Linda Brug, Judy Smith, Sandi Johnson, and Linda Calvin. For additional information about the conference, you may reach Linda Brug at the following e-mail address: LBrugREAD @aol.com or Judy Smith at: judysmith @vtusd.k12.ca.us.

HANDS-ON CURRICULUM

Socratic Seminar

A Pathway for Critical Thinking

BY KATIE PEDERSON

The challenge for many teachers today is finding meaningful ways to challenge gifted students in the classroom setting. Through Socratic Seminars, students are given the opportunity to engage in in-depth conversations about complex ideas and issues of importance to the group. This ancient method of learning is accredited to Socrates who believed that it was far more important for students to think for themselves than for the teacher to give them the answers. In keeping with this theory, today's teachers have another effective tool to use when fostering rigorous education, respect for diverse ideas, ethics, and leadership skills in our gifted youth.

SOCRATIC SEMINARS HAVE 5–12 STUDENTS Katie Pederson and a group of young scholars engage in a Socratic Seminar

A Socratic Seminar promotes active learning as students read and evaluate material based upon the text itself and the abstract or moral questions being raised. In addition, student involvement will vary depending on their readiness to participate, passion about the topic, and level of leadership skills. The next question then is, "How do I begin?" Guidelines are provided here so that you can consider the advantages and disadvantages, and then implement your own Socratic Seminars. These generic steps will need to be fine-tuned depending on the grade level you are teaching. Socratic Seminar is an effective tool for elementary, middle, and high school groups. Your students will develop their skills and beg for more opportunities for these in-depth discussions.

Selecting the Text

Successful seminars come from material that evokes passionate, thoughtful responses from the participants. Effective articles and passages can come from textbooks used in literature, picture books (used for all grade levels), history, or science. You may choose poetry from Langston Hughes or Robert

Frost or the Van Alsburg picture book, *The Wretched Stone*. Other powerful resources include newspapers, magazines, Internet, art prints, or musical pieces. Choosing a topic of interest from the news like the Elian Gonzalez story has high interest and lends itself to in-depth discussion. Selecting two or more articles on the same topic with different perspectives allows students more material to analyze and evaluate before discussion takes place.

Creating the Question(s)

Both teacher and students can create open-ended questions that reflect genuine curiosity about the issues involved. An effective opening question leads to new questions that delve deeper into the ethics of the posed topic. If you were discussing the novel *Shiloh* by Naylor, you may want to begin by asking a question like "How did telling lies to his family affect Marty?" If you have discussed Kohlberg's Stages of Moral Reasoning, you may want to ask "What stages do you feel Marty went through as the story developed? How are these different from Judd's ability to make decisions?" Good questions will encourage participation from all students.

Managing Space

A Socratic Seminar will have 5–12 students. Larger groups are possible, but the intimacy of the discussion group is lost and some children will choose to become "lost" and not participate. There are ways to resolve this issue. One would be to have concentric circles where the inner group is discussing and the outer group is working on another related or unrelated task. After 30-45 minutes the groups change. The length of time varies depending on quality and quantity of material, age of students, and length of class period. Another method for management would be to team with another class and send half of your group out of the room.

Setting the Stage

Traditionally, students sit in a circle with copies of text, their notes, and note-taking materials. If it is a short piece, it may be read again within the circle. As students speak, they need to reference the article by citing paragraphs and reading aloud the passage in question. Because this is a seminar format, hands are not raised. Students are encouraged to talk to the group in a conversational atmosphere.

Facilitating the Seminar

The ultimate goal of a Socratic Seminar is for students to have in-depth, thought-provoking conversations that allow for insight and clarity on an issue by thinking for themselves. In the course of the discussion both facilitator and students consider the ideas brought forth by others and can then extend upon the ideas, or propose an alternative point of view. The role of the leader is to pose questions that allow for a variety of answers and see that all sides of an issue are addressed. The facilitator/teacher instructs students on how to be active, productive participants in the seminar. Successful seminars do not just happen. Teaching students opening phrases that will allow them to carry the conversation is key. This "accountable" talk invites all participants to share ideas and thoughts. Some openers you might like to try would be: "Say more about…" "How does … differ from…?" "That reminds me of…" "I think I heard…say." "I would like to add…" "Could you tell me more about…" "I think the author meant…" or "In what ways would you change if…" The teacher acts only as facilitator in the event that a new question needs to be posed or to help resolve conflict. There are groups where one or two children tend to dominate the talk. If this dominant behavior becomes a problem, one way to resolve the issue is to allow each child a number of tokens. As they speak, they toss a token into the center of the circle. When their tokens are gone, they don't get to speak anymore. Often this visual cue is enough for them to see that they are being unfair to their peers and the behavior extinguishes itself. It also lets you know who is not participating.

Participating in the Seminar

Before students share their ideas, concerns and attitudes about the chosen topic, they need to come to the seminar fully prepared. They need to have read the required articles, made notes of key issues or points and have thought through the material. An effective way to assist students' preparedness is to encourage the use of sticky notes as they read. While reading, they put small sticky notes at sections that are key such as: character analysis, plot development, and moral decision making. After finishing the readings, students need to prepare several questions that they would like to discuss with the group. Through the seminar process, students will increase their knowledge as they begin to look at issues from multiple sides and perhaps come to new conclusions. Over time, natural leaders and some unexpected leaders evolve. All participants need to remember that in Socratic Seminars, everyone comes prepared to discuss, offer opinions based upon the text, and will not praise or put down comments made by other participants. It is through this powerful format that student self-esteem as well as independence is promoted. Seminars foster listening and leadership skills while encouraging a pathway for critical thinking and problem solving. ■

KATIE PEDERSEN currently teaches a 4/5 combination GATE class at Hawthorn Elementary School in San Diego Unified School District where she has used Socratic Seminars for the past four years. She has served as a GATE mentor teacher, and was the 1999 CAG Teacher of the Year from the Palomar Region.

Engineering with a Creative Edge

Realizing and Defining A Dream

BY JENNIFER BEAVER

If you're lucky in your travels to Budapest, Las Vegas, Seattle, or even downtown Los Angeles, you may have seen them—the exuberant and graceful water spectaculars that characterize the fountains crafted by WET (Water Entertainment Technology) Design. In fact, to call them simply fountains is an understatement: They are more accurately termed "water features," and they are painstakingly designed for each unique environment as a source of pleasure. Based in Los Angeles, WET Design was founded by three former Disneyland managers who had a vision for a new type of entertainment.

Of course, as we follow the movement of the water, listen to the accompanying music, and watch the people watching the show, most of us are simply wrapped up in the moment—immersed in the sensory experience of it all. We're certainly not thinking about what it takes to make it all work—the concept, the planning, the nuts and bolts and feats of engineering.

But someone has to. And for many of the WET Design projects, the person behind the curtain is Tony Freitas, an engineer-by-training with a very creative spirit. Tony, Manager of Architecture & Facility Engineering, is one of those fortunate people who found a way to translate a childhood interest into an unusual and satisfying career.

His interest in entertainment and what makes it tick goes back a long way. "When we would go to the state fair, he would watch the rides for hours," remembered Tony's mom, Sharon Freitas. "One day at Disneyland, he told me that some day he would create a better, safer way to thrill people."

And thrill them he does. People travel for miles to experience a WET Design water feature. To reward them for coming, Tony and his group make sure that what people see is an entertaining event—not the infrastructure that holds it up. "Technology is messy," he explains. "It's not what people want to see. Even at the Star Wars tour at Disneyland, for example, what visitors experience looks machinery, but it isn't functional—it's a designer's version of technology."

The Creative Engineer

Making the nuts and bolts disappear is not an easy task, but one that Tony relishes. "At WET Design, we don't want the technology to be on display," he said. "Our greatest pleasure is to produce a wonderful fountain that looks as though there was no thought to the technology behind it. Our other challenge is to make it as low maintenance as possible, because seeing someone working on one of the designs can destroy the illusion."

"Water features" are painstakingly designed for each unique environment

For some engineers, this behind-the-scenes role might not be appealing. For Tony, however, it represents a challenge—and a great opportunity to break out of the box. "This is a unique job for an engineer—much more creative than usual," commented Tony, who worked with Allied Signal and the Los Angeles Department of Water and Power before joining WET Design. "I get to work with all different types of people from all different types of disciplines related to public spaces and entertainment—designers, architects, artists, and so on."

To make sure that WET Design clients get the distinctive, unique projects they seek, Tony sits in on the design stage of the project. That way, he can help make sure that the design they conceive can actually be built. And sometimes, WET Design goes beyond what is conventionally possible and creates innovative fountain technology. These special components are manufactured in another part of the company, WET Labs.

These are not your standard fountains in the park.

And Tony is not your standard engineer.

Growing Into The Future

So how does a kid fascinated by entertainment and public spaces wind up as the technical magician behind some of the world's most creative water structures? In a nutshell, he evolved—from evaluating the dynamics of roller coasters to a USC engineering degree, through two good but unsatisfying-to-him jobs—and kept on seeking as he went.

Growing up in the middle of eight children, Tony participated in the pre-GATE era of instruction when gifted kids—if they were fortunate—were included in classes for Mentally Gifted Minors.

But even if there had been a special school for future-water-feature-visionaries-and-engineers, it's doubtful that Tony would have attended. In the Freitas household, interests were encouraged—but not managed or directed by parents.

If the Freitas name is familiar, it's not surprising. Tony was a Student

Seminar presenter at the recent Conference 2001 at Century City. His mom, Sharon, has held many positions in the California Association for the Gifted (CAG) and his father, Dennis, is the CAG Web Administrator.

"Tony always hung back and watched how things worked, like the physics of a swing," recalled Sharon. "He wanted to do things that were advanced for his age—like build electronic kits from Radio Shack or make complicated projects for science fairs."

So how did his parents handle this? "At first, we worried that he wouldn't finish what he started," said Sharon. "But even that isn't a bad thing. We didn't mind letting him go out on a limb. Parents have to have some trust. These days, it seems parents put a lot of pressure on their kids to be proactive and perform. But actually, falling on your face is part of growing up."

As it turned out, Tony was a finisher. When he asked for a black and white camera so he could take pictures for a new high school time capsule, for example, he completed the task—at an age when he was still too young to attend the high school.

And how, at 38 and in possession of his dream job, does Tony view his past? Should he have been channeled—as some kids are in magnet schools and other educational programs—into an area that matched his interests?

"As a kid, I didn't have clear goals—and most kids don't," he said. "And I don't like to see their parents try to focus them too much. Just because a kid wants to be a doctor one week, don't buy him a dissecting kit—he may want to be a firefighter the next week."

Or the creative engineer behind some high-profile entertainment.

Editor's Note: You can view these creative water designs on the Internet. Go to www.wetdesign.com and click on "portfolio." You can also click on "Bellagio" where you can download a video version and see this famous fountain in action accompanied by the music of Singing *in*

The Development of Leadership and Gifted Youth

BY FRANCES KARNES & JANE CHAUVIN

A student of history quickly realizes that the history of the world is a continuing saga of one aspiring leader after another. Each age or even decade seems to be marked by the personal story of an individual who attempted to make a difference, whether for good or evil. Historians have wrested for years with the age-old question of whether "the times make the man" or "the man makes the times." Even though society has never fully resolved this dilemma, one thing remains steadfast: certain characteristics are found in almost all successful leaders.

Stodgill (1974) contributed greatly to the research on leadership characteristics when he and fellow researchers factor analyzed all of the current research on leadership available to them at that time. Results of this exhaustive study revealed that while definitions of leadership may vary greatly and circumstances whereby people rise to a leadership position dictate the need for different types of leadership style, virtually all leaders must display intelligence, creativity, and the ability to make decisions based on critical judgment.

Leadership was included in the definition of the six areas of gifted/talented developed by the U.S. Commissioner of Education (Marland, 1972), yet most programs for the gifted do not have leadership as a focus even though many gifted individuals display characteristics that denote potential in this area. Sisk (2000) points to the fact that there is a strong relationship between intellectual and personality characteristics. She pairs the intellectual characteristics of exceptional reasoning ability, intellectual curiosity, and insightfulness with the personality characteristics of a passion for learning, powers of concentration and intensity, and decisiveness. Her conclusion is that with the obvious overlap of intellectual, personality, and leadership characteristics, many students who have been identified as academically gifted have the potential to excel in leadership as well. What is lacking are programs designed to develop these talents, and research to support the effectiveness of such programs. There have been encouraging attempts to design instruments to identify leadership potential, but few programs have arisen to develop these skills.

Establishing the Right Climate

Parents can be active participants in their child's development of leadership skills by encouraging the traits cited and by advocating for the infusion of leadership concepts and skills into the existing curriculum. Karnes and Bean (1996) encourage teachers of the gifted to use thematic units and reading lists that include biographies and autobiographies of outstanding leaders. Students often see themselves, as well as their hopes and ambitions, in the lives of leaders who have become famous. An insight into the contributions of outstanding leaders provides a motivating influence for many idealistic youth. This influence is healthy and good, and proves to the gifted student that one can dare to dream dreams and make them come true by exercising persistence and perseverance. Mentoring and internship programs provide opportunities for the leaders of today to inspire gifted youth by allowing them to experience what it means to be a leader. Parents, teachers, and business and community leaders must all play a role in setting a climate where young gifted individuals can aspire

to become the leaders of tomorrow. To fail to do this might result in the loss of one of our country's greatest assets and would greatly impact the world that our children and our children's children will inhabit.

Any study of leadership should certainly include people from the fine and performing arts. Creativity is as much a part of leadership as analytical thinking. What sets a manager and a leader apart is vision. The manager seeks to maintain the status quo, while the leader visualizes what the future will bring. The gifted are noted for their vivid imaginations and their forecasting skills, and most are talented in their abilities to think in diverse patterns that produce a plethora of ideas. These skills translate into a type of intellectual and personal creativity that sets the gifted and talented apart from their peers. It is not enough, however, merely to possess talent. These gifts must be nurtured and encouraged and allowed to grow and develop.

Leadership Screening Instruments

The need for the leadership development of gifted students has been well established (Davis & Rimm, 1994; Karnes & Bean, 1990, 1993, 1995; Karnes & Chauvin, 1986; Richardson & Feldhusen, 1989; Sisk & Rosselli, 1987a; and Webb, Meckstroth, & Tolan, 1982). Karnes and Bean (1989) have stated that millions of dollars are used every year for the leadership training of adults, but generally few financial commitments have been generated for the leadership development of children and youth. Specifically, few states have designated in their definitions of the gifted the dimension of leadership (Stephens & Karnes, in press). Instruments to screen and identify the leadership potentials of elementary and secondary students have been developed. There are also a variety of leadership training materials (Gallagher, 1982; House, 1980; Richardson & Feldhusen, 1989; Magoon & Jellen, 1980; Roets, 1986a; Sisk & Rosselli, 1987b; and Sisk & Shallcross, 1986).

In addition, a book focusing on leadership and youth and one on girls as leaders has been published (Karnes & Bean, 1993; Karnes & Bean, 1995). The status of screening and identification instruments in leadership for elementary and secondary youth was limited and in its infancy in 1991 (Karnes & Merriweather-Bean, 1991). The same seems to be true almost a decade later. Measurements with standardization data based on validity and reliability are limited in number.

"What sets a manager and a leader apart is vision. The manager seeks to maintain the status quo, while the leader visualizes what the future will bring."

- Eby Gifted Behavior Index (Eby, 1989)
- Gifted Education Scale (McCarney, 1987)
- High School Personality Questionnaire (Cattell, Cattell, & Johns, 1984)
- Khatena-Morse Multitalent Perception Inventory (Khatena & Morse, 1994)
- Leadership—A Skill and Behavior Scale (Sisk & Rosselli, 1987b)
- Leadership Characteristics (Part IV) of the Scales for Rating Behavioral Characteristics of Superior Students (SRBCSS) (Renzulli et al, 1976)
- Murphy-Meisgeier Type Indicator for Children (Meisgeier & Murphy, 1987)
- Myers-Briggs Type Indicator (Myers & McCaulley, 1985)
- Rating Scale for Leadership (Roets, 1986b)
- Student Talent and Risk Profile (Institute for Behavior Research in Creativity, 1990)

All the instruments vary in several aspects including grades and/or ages, number of items specific to leadership, response modes, scoring procedures, interpretation, and scores rendered.

Complete Leadership Programs

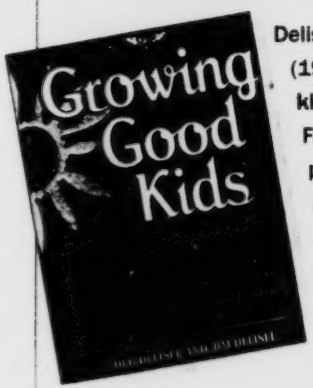
Two additional standardized measures are commercially available: the *Leadership Skills Inventory (LSI)* (Karnes & Chauvin, 2000b) and the *Leadership Strengths Indicator* (Ellis, 1990). They have been designed for purposes other than screening and identification. The latter was constructed to serve as a basis for discussion on the topics of leaders and leadership by counselors and teachers. The former is a diagnostic-prescriptive instrument. It, along with instructional strategies, forms a complete program of instruction.

The *Leadership Skills Inventory* (LSI) was developed after a thorough review of the professional adult literature in leadership, and the items were derived from the concepts and skills necessary to be a leader. The nine areas of the inventory are:

- fundamentals of leadership
- written communication skills
- speech communication skills
- character-building skills
- decision-making skills
- group dynamics

See LEADERSHIP & GIFTED YOUTH, 41

RESOURCES



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Lewis, B. (1995). **The kid's guide to service projects.** Minneapolis, MN: Free Spirit. The guide includes over 500 service ideas for young people who want to make a difference.

Lewis, B. (1997). **What do you stand for?** Minneapolis, MN: Free Spirit. Subtitled, "A Kid's Guide to Building Character," this book helps young people explore and practice positive character traits.

Karnes, F.A. & Bean, S.M. (1993). **Girls and young women leading the way.** Minneapolis, MN: Free Spirit. This book includes true stories about 20 girls and young women who demonstrate they can be leaders.

Karnes, F.A. & Bean, S.M. (1995). **Leadership for students.** Waco, TX: Prufrock Press. This book includes learning activities such as designing a public relations campaign, contacting a local radio station, and interviewing community leaders.

Karnes, F.A. & Chauvin, J.C. (2000). **Leadership Skills Inventory**. Scottsdale, AZ: Gifted Psychology Press. The Inventory is a diagnostic/prescriptive
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Silverman, J. (2000). **"Advanced" fairy tales on trial.** Marion, IL: Pieces of Learning. Uses the same technique as the earlier book, but with a new set of fairy tales as reference points.

ROMANCE OF PASSION

Continued from 1

of passion in education. The first was my attempt to write a heartfelt note to my husband on the occasion of our first anniversary thirteen years ago. I remember going to a thesaurus where the synonyms listed for passion were words like "intense," "emotional," "joyful." Not satisfied with those, I went to the dictionary for more information and was shocked to find that the more complete definition included such phrases as "to endure," "to suffer," "to be affected by outside influences," "to experience extreme compelling emotions such as anger, rage, love, etc."

While I decided to go with the thesaurus definition for the anniversary note, the notion of passion as so vastly multidimensional haunted me—especially as I thought about my early years in the classroom when I typically identified as "having real passion" only those students who pursued projects with obvious energy, animation, and zest. These students were usually verbally gifted extroverts whose stories kept me and everyone else riveted to their every word. At the same time I recalled the students whom I often dismissed as "underachievers" because they did not communicate this same level of excitement about their work, at least not in a way that I easily recognized. Reading the dictionary definition of passion made me want to go back to those students and apologize for perhaps not hearing, observing, and supporting them as well as I might have if I'd understood the many different ways in which passion can be expressed.

Presidential Scholars Project

While this single incident had a great impact on my understanding of the role of passion in education, an even greater influence has been my investigation of the 1964–1968 Presidential Scholars which began as my doctoral dissertation and has endured as my primary research interest—my passion—for the past twenty years. This study focused on the post secondary development of a highly gifted group who in their adolescence won one of the most prestigious awards then available to high school students—the Presidential Scholars medallion—which identified them as potential high achievers and leaders in the future. The initial goal of this study was to follow them into their adulthood to find out to what extent that prediction came true.

At the outset of the project, I fully expected to uncover multiple tales of lives that followed a smooth trajectory from childhood passions to adult careers—and in the earliest stages of the research, conducted when these students were in their late twenties, these stories did abound. One woman, long interested in music, lived out her dream of becoming a full-time concert performer. A boy who won dozens of science competitions became a world-class scientist. Many others pursued various careers that were vestiges of subjects they had "fallen in love with" in their youth. "Aha!" I thought as I read these accounts. "Following one's bliss *is* the most important factor in success—just as I'd always thought!"

Recent interviews conducted as the Presidential Scholars reached mid-life, however, have revealed other aspects of the nature, role, and influence of passion in gifted students' lives and have generated a new line of thinking about the topic. For example, I have learned that passion does not always emanate from positive experiences and, in fact, often has its roots in negative experiences and dire circumstances. One male Presidential Scholar, now a 50-year-old member of the clergy, reported being taunted, beaten, and rejected by classmates for his intellectual prowess. As a child, he never expressed interest in any particular subject, probably because he used most of his available energy for emotional and physical survival. As an adult, however, he turned his feelings of despair and isolation into a career ministering to "people on the edge." Living in poverty but passionately committed to his work, he attributed his persistence in part to his early disenfranchisement: "I thought the loneliness would kill me as a kid. I was scared all the time. But that fear is what allowed me to feel compassion for such a wide variety of people. I can empathize with what it's like to be on the outside looking in. So in a strange way, I'm glad I grew up as I did, though I would not wish those experiences on anybody else."

Similarly, a 48-year-old artist living in New York ascribed her passion for art to a painful childhood where her family, who valued, praised, and rewarded her male siblings, belittled her anytime she expressed an interest in anything but typical female activities. Also, in her urban, working class, ethnic neighborhood, girls were not encouraged to pursue their education beyond high school. "I never did anything artistic in my childhood. It would have been too humiliating," she said. "So I shut down. But watching other kids at school pursue their interests, I did learn to be a good observer. This, I believe, was where I got my eye for detail, color, line. When I finally got away from my family and moved across the country, I was able to use these abilities. It was actually even sweeter because I had to wait so long to get there."

Unexpected Lessons

Another aspect of passion that I learned from the interviews is that different types of personalities express passion in different ways and sometimes the manifestation of these interests might not be apparent to observers. One woman, an eminent geologist at a prestigious midwestern university, said that because she was extremely shy and

quiet, her teachers, friends, and even her parents never knew about her interest in geology. "Other kids got a lot of attention because they were 'out there' with their passions. They would talk about them with anybody who would listen. I, on the other hand, was very circumspect. Like when I was very young, I would bring little rocks to bed and examine them with a flashlight, or I would hide my books on rocks while pretending to be interested in other things. Everybody was very surprised when finally I declared my major because they all thought I was on my way to a degree in English. Nobody ever knew…"

Another man in his late forties talked about how his love of cars was something he dared not reveal to his high-achieving and status conscious parents. "I went to school in a very upwardly mobile suburb where classes like auto mechanics were strictly out of reach for kids in the advanced classes. I finally talked the shop teacher into letting me sit in on a class but I was so scared of being found out that I had to keep all my materials hidden in the shop room. I went to law school but it was a terrible strain for me." Now, happily, he owns one of the most lucrative automobile dealerships on the east coast and hires for his shop mostly highly educated people who have exchanged fast-paced careers and potentially affluent lifestyles for their love of cars.

Finally, the interviews taught me that passion itself can frequently generate negative feelings such as disappointment, anger, or self-doubt, especially when individuals are forced to face their limitations or when they must abandon a long-cherished goal or interest. Sometimes these experiences result in an apparent loss of passion, although, as several stories suggest, this might not be so much a loss as an opportunity to reconfigure one's pursuit. "I finally had to admit to myself that I was no longer suited to academic life, just as it was no longer suited for me," a former professor of education admitted. "It was the hardest thing I ever had to do because I had been so successful. I quit the university and spent a long time wandering around aimlessly. I still had a passion for teaching but just couldn't hack all the things that went along with university life. My friends and colleagues couldn't believe how apathetic I seemed to be. But I wasn't really apathetic—I was just trying to find a new niche."

An inventor echoed these sentiments in his description of his disillusionment with his career. "I expected to be much further along by now," he reported wistfully. "People just don't understand my ideas. I don't know what I was expecting, but it wasn't this. I pursued my dream but it just didn't work. Sometimes I beat myself up over it but in my heart, I know I did the best I could. It just wasn't good enough. I've been at it since I was a kid—I guess it's time now for a break. It's a pretty anxious time for me but something I have to get through. And then I'll try some new ways."

The Complexity and Elegance of Passion

From these interviews and others, I have become increasingly convinced that passion, with its complex and sometimes conflicting facets, is a much more elegant notion than the stereotyped versions of "happiness" or "bliss." And if this is so, we are doing a disservice to students when we equate passion with "doing what you love" unless we also acknowledge the darker emotions—fear, anxiety, disillusionment, rage—that accompany real passion. To do otherwise would be like presenting students with an artist's palette of many splendid colors but allowing them to use only one shade of blue.

How, then, can educators and parents foster true passion in students? First, we must help them understand that passion can emanate from and thrive in a vast range of circumstances, issues, and emotions. We must demonstrate that even the most difficult experiences can generate passion and that, at the same time, passion can sustain them in the hardest of times. Second, we must learn to identify passion in students who do not fit the idealized picture of a passionate learner and recognize passion in students whose communication styles are different from our own. We must become aware of our biases about passion and understand that some behaviors or qualities we would typically overlook might in fact be the real thing. Third, we must teach our students that true passion is more than the drama and exhilaration that comes from finding and doing something they enjoy and that other compelling ingredients such as commitment, hard work, sacrifice, and accountability are significant as well. ■

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FELICE KAUFMANN, Ph.D., lives in Bethesda, Maryland and is an independent consultant in gifted education. She conducts workshops on underachievement and is working on a book about the Presidential Scholars at midlife. She will be a major speaker at the 2001 CAG conference in Sacramento.

Note: *Identifying characteristics of the subjects mentioned in this article have been changed.*

ROOTS OF INTEGRITY

Continued from 20

things set right. We notice how they ask the same question over and over again with a "why" attached, in an effort to ferret out ultimate truths—truths with a capital "T." When we see a gifted child cry over someone else's hurts or a bird with a broken wing, worry about the boy down the street whose father hits him, or feel sickened by television accounts of famine or war, we are looking through the keyhole at these First Nature traits.

Their Intense Concerns Make Us Uncomfortable

Far too often these intense characteristics are belittled, brushed off, or criticized: "Don't' be such a worry wart, you're just a kid!" "Stop making such a big deal out of everything!" "That's none of your concern." "You'll understand when you've grown up." Their intense concerns can make us uncomfortable. After all, if we're honest we must admit that we want our kids to fit in, to be kids instead of miniature adults, and we want them to stop bringing up subjects that we have trouble with ourselves because even as adults we have few answers to questions of immorality and injustice.

Then what do we do with these extraordinarily perceptive and empathic champions of truth and justice? First, in order to truly assist gifted children in the development of moral character and integrity, we must realize that the First Nature traits of giftedness are essential building blocks of excellence, especially in the realm of integrity. (See Table 1, First Nature Traits of Giftedness.)

Helpful Response and Support

Once we fully grasp the link between childhood displays of the First Nature traits within the context of the emerging adult, we can make better decisions about how to respond to them and how to help them work through moral dilemmas. In our interactions with gifted children we must avoid simplistic answers that invalidate their concerns and resist the temptation to offer rigid truisms since they will see through them and become even more confused. Rather, through the everyday bits and pieces of experience and openly pondering life's questions, we as adults can provide a backdrop of validation and support for their inquiries. We can assist them in coming to grips with the complexities of moral judgment. As they make their way through the intellectual and emotional mine field of right versus wrong, we can be there to reassure them that even though they feel deeply concerned they are not a minority of one, that there are others out there who are also concerned who are trying to make things better.

While modeling optimism, we can talk directly about how hard it is to make decisions sometimes, and how uncomfortable it can be to take a stand or to be unable to set things right despite our efforts. We can offer the notion that there has been and probably always will be conflicts between people and that people have different ideas about what is fair and what is not. Then we set the stage for the gifted child to come to grips with the way things are versus what might be, and little by little become street smart about which battles to fight, when, and how, and how many at a time.

The gifted child needs to develop a strong sense of self-permission to seek out the higher truths, to become an effective standard-bearer for morality, and a role model of integrity. We might even go so far as to say that the traits and differences that make one gifted are the essential ingredients of integrity. Nevertheless, history is dirty with brilliant individuals who have used their powers of intellect and influence for destructive purposes. So, we must ask ourselves, what types of environmental influences contribute to higher levels of integrity? Are we serving gifted youngsters when we focus most of our attention on their intellectual and creative development at the expense of their emotional and moral development? And, if so, what can we do to consciously support the development of integrity (and in turn attempt to reduce immorality) at home and in the classroom?

Integrity does not magically appear once one has completed a formal education. If we yearn for gifted adults with high integrity, then during their developmental years we must attend to the concepts of mind and heart, of intellect and character. Both sides of the more complete circle of human development belong in any learning or guiding environment for the gifted. I support Folsum's (1997) observations about the value of blending intellect and integrity:

> With wider order thinking we gather information, connect new information with that previously stored in memory, and transform the information through decision making, planning, judgment, and imagination to reach a solution to a problem, achieve a result, or arrive at a decision about action or belief (p. 266).

The goal is to prevent lives without direction, values, and conviction, and to increase the ranks of smart people who look at things in depth, who truly care, and who have the capacity to operationalize their visions of a better world. And therefore those of us who live with, teach, and counsel gifted youngsters are called to help support their inclination to live large—to do far more than simply drift along without insight or courageous action. We can train ourselves to applaud their wishes to make things better even when we feel compelled to deter them from jumping off the

deep end. We can encourage their questions—especially those about the bigger issues of life—without needing to have all the answers, or any answer at all. We can honor their drive to do something that matters and resist the urge to train them to passively accept the status quo by not making waves.

Giftedness scholar Nicholas Colangelo suggests the following solution for directionless over-acceptors without moral substance:

> To remedy this I think schools could play a greater role in getting people to learn how to think, question, and express themselves peacefully. We should be conditioned to ask about things we don't understand. We should be taught to gather information and draw our own acceptable conclusion (p. 280).

Likewise, Mihalyi Csiksmentmihalyi reminds us that children do not learn moral reasoning and develop integrity by rote learning of facts or simply being instructed. They need to search, weed out patterns, bend their minds around complex issues, and delve into the intricacies of cause-and-effect relationships, including areas of the unknown, to develop confidence as autonomous learners.

To build moral reasoning, gifted children need to be guided in ways that help them:

> …learn to find the moral issues in an ambiguous situation,
> …apply basic moral values to unfamiliar problems, and create moral solutions when there is no one around to give the child direction (Damon, 1988, p. 149).

Seeing giftedness through the lens of the emerging adult who will be capable of both intellectual and moral excellence is precisely what we are hoping for when we bemoan the apparent lack of integrity in so many of today's leaders. Is it not the gifted child of today to whom we entrust many of the challenges and responsibilities of the future? Are they not the ones to whom society has always looked to discover the cures, stop the wars, improve living conditions, and enrich our lives? From that perspective it is both ludicrous and imprudent to limit the direct learning experiences of gifted children to traditional knowledge-based subject matters.

Encouraging the Roots of Integrity to Bloom

Whether we address issues of morality or not, the gifted child deals with them every day, and without assistance can struggle unnecessarily with inner conflicts. Rather than allowing gifted children to settle for a private world overshadowed by excessive worry and feelings of powerlessness, by bringing moral dilemmas out into the open and airing them out for discussion and exploration we can help them find creative ways to deal with what bothers them. Although moral dilemmas may never be welcomed, with early entrance into the options that revolve around real-life problems, perhaps many more of our brightest may eventually be included amongst the ranks of those to whom we look to model the best of humanity. Perhaps if we welcome questions of ethical and moral conflict more consciously, the roots of integrity that exist in the gifted child will bloom more fully in adulthood. Consequently their First Nature needs to find the truth and set things right may reach the same level of development as their brilliant minds, and in turn will benefit all of us. ■

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MARY-ELAINE JACOBSEN, Psy.D., is an adjunct associate professor at the University of St. Thomas in St. Paul, MN. In her private clinical practice she primarily counsels gifted and talented adults and adolescents. She is the author of a new book, *Liberating Everyday Genius, A Revolutionary Guide for Identifying and Mastering Your Exceptional Gifts* (November 1999, Ballantine Books).

SYSTEMATIC RISK-TAKING

Continued from 14

terms of the successive small risks they must take to reach them. Parents and teachers can encourage students by taking steps outside their comfort zone too. Students learn strategies and are encouraged to take risks when they observe trusted adults working with their fears. Leadership implies a willingness to take action, and action always means risk. Gifted students need to get the message that it is O.K. to not be sure how to proceed, that courage means to feel afraid and to take action anyway—that success is not always certain. ■

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MAUREEN NEIHART, Psy.D. is a licensed clinical child psychologist and a former member of the board of directors of the National Association for Gifted Children. She is a former teacher and gifted program coordinator and a foster parent. She may be reached at: neihart@mcn.net.

I'M A NOUN

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recognize the impact on career choices of culture-based stereotyping that starts as early as infancy. Female students also need more assistance in understanding the "gatekeeper" role that higher-level mathematics courses play in accessing many of these careers.

Much has been written about the role that mentors can play in this process. In an age when more young women may become breadwinners and possibly the heads of single parent families, it is important for mentors to explain the benefits of economic independence and flexible schedules that accommodate family needs. Yet, researchers have found that gifted girls express many frustrations regarding the ineffectiveness of schools to encourage achievement beyond their K-12 education. In a survey of women who had participated in gifted programs during their years in school, common concerns included: "lack of challenging curriculum, lack of role models, little organized mentoring, few networking skills, and unhelpful, unchallenging and perfunctory guidance counseling."

Gender-based Pedagogical Approaches

Not so long ago, formal education was thought to be medically dangerous for young women and formal education was a male privilege. This fact alone is seldom known to today's female students who assume that access to higher education has always existed. When girls and women did finally enter schools, the approaches to instruction were primarily proven on boys and men. At first when girls did not perform well in certain areas of education, they were encouraged to become more like boys. Over time, concern regarding achievement differences and differential treatment based on gender has spurred researchers' interest in how girls learn and how they should be educated. For example, (Ross, 1998) reports on findings by Ann Gallagher who has been studying gender differences in cognitive processing and which may help explain gender differences in mathematical reasoning based on problem solving approaches. In addition to using such insights to explore a broader scope of questions for commonly administered standardized tests, similar research has spawned new ways of approaching instruction for girls.

In 1995, AAUW released a report entitled, *Growing Smart: What's Working for Girls in School.* A synthesis of more than 500 studies and papers, this report recommended the following actions be taken to strengthen girls' confidence and achievement:

- Offer single-gender classes to address girls' lagging self-perceptions in math and science.
- Eliminate competitive classroom practices in favor of more cooperative learning group activities.
- Provide mentors and role models by using multigrade classroom models and looping (teachers stay with their classrooms for consecutive years).
- Make sure that boys do not dominate in activities that involve hands-on learning and the use of lab equipment.
- Involve girls in community and business opportunities that extend their success beyond that which occurs only in the classroom.

Although not written specifically with gifted girls in mind, these recommendations have many rich and meaningful implications for America's young women who are gifted and talented. Not only must we apply a lens that focuses on the needs of academically gifted young women, but we must further adjust the lens to fully consider the unique needs of gifted

young women from culturally diverse backgrounds. Barbara Kerr, author of *Smart Girls Two*, provides helpful distinctions that unknowing educators may ignore when working with Asian American, African American, Native American, and Hispanic American young women. For example being aware of *marianismo*, the female parallel to machismo for men in Hispanic culture, can help educators and parents recognize the strong influence of tradition and culture that can conflict with an achievement orientation. We must recognize the additional barriers that are faced by bright minority females being raised in urban environments or in poverty. More efforts must be made to acquaint these talented students with specialized programs, college planning, scholarship opportunities, and peer support for academic achievement.

More attention also needs to be paid to the sometimes subtle and not so subtle forms of bias in curricular materials that misrepresent or fail to represent the contributions of women in our school curriculum. Even teachers in gifted programs are generally unprepared to integrate women's history into curriculum. Take for example the following list of famous women: Billye Avery, Martha Clarke, Marian Wright Edelman, Ruth Prawer Jhabvala, Barbara McClintock, Yvonne Rainer, Bernice Johnson Reagon, and Leslie Marmon Silko. Few teachers are familiar with their achievements and contributions. This lack of knowledge of women's history plays out through a dearth of authentic examples that teachers can draw upon to inspire young women with gifts and talents.

Single-Gender Schools

Both social policy and antidiscrimination laws have been tested lately by the growing increase in single-gender schools and classrooms. Although the research studying the impact of these schools is often flawed by its nature, single-sex education has been found to produce positive results for some students in some settings. Reports are quick to point out that there is no evidence to suggest that single-sex education in general is better than coeducation. Instead, educators are encouraged to look beyond gender as the only variable that determines a school's effectiveness and to recognize that no learning environment can provide a sure escape from sexism. Although single-gender schools have not been embraced wholeheartedly, they do provide a working laboratory to study how girls learn best, a mission that should not be ignored by gifted summer programs that often serve the needs of bright female adolescents.

Sexual Harassment

Although alarming numbers of both boys and girls are sexually harassed in schools (4 out of 5 or 81%), a gender gap still exists. In terms of frequency alone, 31% of the girls responding to a national survey reported that they were harassed often as compared to 18% of the boys. Although all students suffer from such an incident, girls suffer greater effects than boys. Unlike boys, girls are much more likely to not want to go to school, not want to talk as much in class, find it hard to pay attention in school, stay home from school or cut a class, make a lower grade on a test paper, find it hard to study, or make a lower grade in a class. These findings point to a silent crisis in schools: particularly when schools are reluctant to acknowledge the frequency and impact of sexual harassment. As an educator who has worked with single-gender programs for young women who are gifted and highly able, I have confirmed that these young women are not immune to the whole continuum of sexual harassment. Sadly, their silence about these issues has often been reinforced by a lack of effective school policies that deter sexual harassment.

Teen Pregnancy

Not limited to only academic decisions, a bright young woman's decision to engage in early sexual activity, early parenthood, or even an early steady relationship all have consequences that can influence subsequent life events. Teenage pregnancies are again on the increase according to some reports, a trend that has obvious educational and economic ramifications on the future lives of young women. As Barbara Kerr reminds us, being gifted does not mean that a student is exempt from peer pressures and rapidly changing relationships. The importance of open communication and a trusting relationship between parents and their daughters can not be underestimated.

Other At-Risk Factors

While girls appear to be catching up with boys in terms of achievement scores, they are also smoking, drinking, and using drugs as often as the boys. One explanation for the shrinking gap in these data is offered by Susan McGee Bailey quoted by the National Council for Research on Women. "It's an extension of the fact that, in a culture that places value on things that men and boys do, it's understandable that more girls want to do things that boys do than boys want to do things that girls do." Girls also report smoking cigarettes in an effort to control their weight, a problem which still continues to haunt girls more than boys.

Societal Messages Given to Young Women

Joan Brumberg's powerful book, *The Body Project*, explores many ways in which girls' images of themselves have been influenced as maturational levels change in soci-

TABLE 1

Factors that Distinguish Successful Gifted Women	Educational Implications
Successful women are voracious readers.	Schools need to continue encouraging girls to read (e.g., book clubs)
Successful women possess the ability to fall in love with an idea.	Girls as well as boys need to be encouraged to identify their interests and to select opportuni ties for learning and growing that continue to hone their interests.
Successful women learn how to grow from the challenges they face in life.	Counseling should move beyond coping skills to include problem solving and ways to grow from failures and disappointments.
Successful women appear to be comfortable with spending time alone. woman's	Schools need to recognize that socialization is not the most important goal of a young

ety. She proposes that media and popular culture continue to define women through a lens of body image and sexual appeal rather than self-worth or accomplishments. External controls of the female body have been replaced by internal controls which are manifested in girls' dieting obsessions and resulting eating disorders. The "protective umbrella" that used to shelter young women has been shattered as they become the poster children of our sexually explicit and increasingly violent society.

Two well-known gender researchers, Lyn Mikel Brown and Carol Gilligan describe an interesting phenomena of "self-silencing" often witnessed during girls' adolescent years during which they verbalize "I don't knows" more often and learn to be "nice," translate "compliant." Many of the young women participating in our single-gender leadership program have been successful in changing this communication behavior through the influence of female mentors who can help young women find their voices (an experience that Brown and Gilligan term as "meeting at the crossroads"). We also found that the single-gender environment helped in reversing the pattern of "I don't knows" simply because there were no boys present for the young women to wait on to answer questions, start discussions, or speak out on issues and concerns.

Promising Directions

As I have sought to identify effective solutions that can help bright adolescent girls succeed in school and later in life, I have found that it's helpful to study successful women. Barbara Kerr in her book, *Smart Girls Two*, has identified a number of factors present in her study of successful women that have implications for bright female students (see Table 1). Next to each factor is an implication for what schools could do to encourage the development of these factors in our young female students.

I want to emphasize the last item on the list in Table 1. Listening to one's mind and reflecting on one's future is an increasingly difficult challenge within the sensations bombarding the society in which we live. This is particularly true for women. As Florence Nightingale once said, "Women never have an half-hour in all their lives (excepting before or after anybody is up in the house) that they can call their own, without fear of offending or of hurting someone." She hypothesized that one of the reasons some of us stay up so late or rise so early is "not because the day is not long enough, but because they have 'no time in the day to themselves.'" Even today, I truly relish the few unscheduled minutes of my life when my mind is free to take me on a journey. If young girls and women can find time to reflect, contemplate and even dream, they increase their chances of finding what lives within themselves and building a self-esteem based on inner strength.

Those who work with bright adolescent women have a particular responsibility to help them develop self-esteem based on their abilities, not on social popularity and fads. Early career discussions are needed to help these young women look beyond short-term choices to long-term options. Opportunities for leadership can provide a sense of pride and accomplishment. Interactions with mentors and successful independent women in leadership positions can help bright young women look beyond the "here and now," develop life lists, harvest their passions and interests, and set credible goals.

Programs such as our single-gender Leadership Program for Young Women have helped support young women by providing a challenging academic environment, mentoring experiences, and an affective milieu that emphasizes the skills necessary to make wise choices. When young women are given the chance to participate in short but intensive experiences such as these, they have the chance to redefine their future dreams, to

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celebrate the richness of women's heritage, and to return to their home school environments strengthened with a belief in themselves. During two short weeks of residential summer camp, many of the bright adolescent women who spent time in that safe cocoon called "camp" were able to explore their dreams and ambitions, freed from the ever-present pressures of society and its expectations.

Summer programs are not the only answer to helping bright young women succeed. In class seminars, after-school programs, guidance services, and parenting all offer opportunities for informal education that can address important topics for this population. One teacher I know met with a small group of middle school girls during lunch once a week and together over sandwiches and sodas, they pondered important dilemmas such as how women balance both career and family, how to free yourself of dependent relationships that stifle your real sense of self, and ways to manage and express emotions. These types of interventions don't cost extra money and are often the best vehicles for helping other questions and issues to rise to the surface.

Our collective actions are but a small investment for the future, but ones that will have tremendous payoffs when these young women mature and assume productive and satisfying lives in society. Geraldine Ferraro once said, "Some leaders are born women." Whether or not our nation's young women live up to their potentials depends on the messages that they are given by schools, families, and the community. A close examination of the messages reviewed in this paper still point to a need for more positive action and more support for America's bright young women. ■

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HILDA ROSSELLI, Ph.D. currently serves as Assistant Dean for Undergraduate Programs for the College of Education at the University of Southern Florida where she has taught and coordinated the Gifted Master's Program since 1991. She has also worked on behalf of high ability learners while serving as President of the Florida Association for the Gifted, board member for Parents for Able Learners, newsletter editor for the World Council for Gifted and Talented, and board member for the National Association for Gifted Children.

LEADERSHIP & GIFTED YOUTH

Continued from 31

- problem-solving skills
- personal skills
- planning

(Karnes & Chauvin, 2000a).

Validity and reliability data are reported (Karnes & Chauvin, 2000a). The instrument is easily administered to an individual or to groups of students. The teacher or group leader instructs the students to honestly self-assess their leadership concepts and skills on a Likert scale across the nine areas. The scores are plotted on the Leadership Profile Sheet to determine the knowledge and skills in need of strengthening. Through the instructional strategies provided in the *Leadership Development Program Manual* (Karnes & Chauvin, 2000a), the teacher guides the students in enhancing leadership abilities through group discussion, role-playing, and simulations with some accompanying reproducible sheets for student use.

Implementing the Leadership Development Program

The LSI and the Leadership Development Program (LDP) have wide application in the school and community. Within the framework of a middle/junior high school and/or a secondary program, the plan for leadership education may take several configurations. Training could become an integral component of a resource room program or the concepts and skills could be designated across academic courses. At the high school level, specialized courses may be established in leadership with accompanying opportunities for mentorships and internships both within the school and the community. In some towns and cities, groups such as the YMCA and library have developed leadership for participants. One significant program using the LSI and LDP has been the Leadership Studies Program, a one-week summer residential course conducted on the campus of The University of Southern Mississippi (Karnes & Merriweather, 1989; Karnes, Merriweather, & D'Ilio, 1987).

Central to the program, after all concepts and skills have been learned, is the development of a plan for leadership, which each student writes based on a positive goal to implement or change something within the school, community, or religious organization. Each plan should be written with objectives with corresponding activities, person(s) responsible, timeline, and evaluation. Instruction must guide youth to establish realistic plans to be completed within a given time frame. Presenting the plans for constructive feedback to the class or group members will provide practical application in several dimensions of leadership development. In some cases, a student could be teamed with a school or community mentor to give guidance and support for the plans for leadership.

Students wanting to have their accomplishments acknowledged in broad arenas could display them in their schools and communities. Keeping a log, taking photographs, sharing correspondence, and through displays in libraries, malls, commercial establishments, and other locations within a city will give added focus to the leadership abilities of youth.

Early Development Important

The pool of individuals from which the leaders of tomorrow will arise will increase as progress is made in identifying and developing talents for leadership. Mary Seay (2000) stated emphatically that "our need for leaders with vision is even more urgent today than yesterday." The younger students with high potential for leadership are identified, the greater the opportunity to nurture and develop their skills.

Self-confidence is another important characteristic for all future leaders. The younger individuals begin to develop their leadership potential, the more opportunity there is for increases in their feelings of confidence in this area. A well-developed leadership program can enhance self-image for students of all ages. Teaching and programming for leadership development needs to be a schoolwide effort that begins in the lower elementary grades. Leadership develops only in an atmosphere that supports individual strength and talent and encourages the expression of different viewpoints. Summer residential programs, available in various areas of the country, are an excellent choice for the development of leadership skills. The research that has been conducted on the outcomes of these programs is encouraging. The focus of the programs that exist is on acquiring knowledge about theories and models of leadership, and on developing and strengthening leadership skills in the individual participants. Emphasis is usually placed on communication skills, group dynamics, and creative problem solving (Feldhusen & Kennedy, 1998; Karnes & Merriweather, 1987; Smith, Smith & Barnette, 1991).

The conclusions drawn by the researchers who have studied these programs are encouraging. Wade and Putnam (1995) reported that the gifted and talented youth who attended these summer programs definitely wanted to make a difference in the schools and communities to which they would return. They also were emphatic about wanting a choice about how and when they would serve as leaders. These young gifted individuals realized that a large part of leadership is effort and perseverance.

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FRANCES KARNES, Ph.D. is Professor of Special Education at The University of Southern Mississippi and is the Director of both the Leadership Studies Program and the Center for Gifted Studies. She is the author of fifteen books and numerous articles, many of them focusing on developing leadership in young people.

JANE CHAUVIN, Ph.D., is Professor of Education and Counseling at Loyola University in New Orleans, Louisiana, where she has served as department chair. She has served on the editorial boards for several professional journals and has published widely on the topic of developing leadership.

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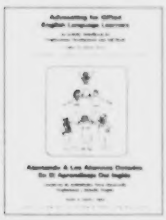

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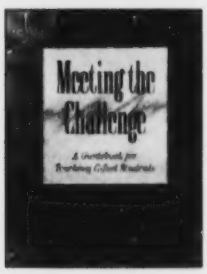

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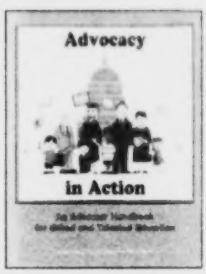

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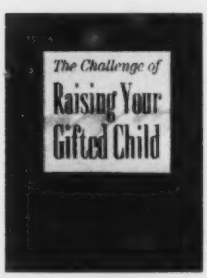

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COMMUNICATOR

CALIFORNIA ASSOCIATION FOR THE GIFTED

VOLUME 31, NO. 4, FALL 2000

ISSUE HIGHLIGHT

HIGHLY AND PROFOUNDLY GIFTED CHILDREN

The number of highly and profoundly gifted children in the nation is very small in comparison to other populations within our educational system. However, their needs are very distinct as are the services required to meet these needs. Among the many questions we explore in this issue are:

- **Who are the highly and profoundly gifted?**
- **How do we recognize and identify them?**
- **How important is radical acceleration?**
- **Is homeschooling a desirable option?**
- **Should these children enter college early?**
- **What are their social and emotional needs?**
- **What resources can parents and educators use?**
- **What is available on the Internet?**

UPCOMING ISSUE HIGHLIGHTS

Spring - Examining Issues in Gifted Education

Summer - Professional Development

Fall - Social Science

Winter - Special Needs of Minority and English Learner Students

Defining the Few

What Educators and Parents Need to Know About Exceptionally and Profoundly Gifted Children

BY ANNETTE REVEL SHEELY AND LINDA KREGER SILVERMAN

"Can I raise him properly?"
"This is going to cost a lot of money."
"Is she smarter than we are?"
Guilt.
Shock.
Denial.
New respect for the child.

These are real reactions from parents after learning that their child is exceptionally gifted (Edwards, 1987).

Who are the exceptionally and profoundly gifted?

People who are exceptionally gifted are as different from moderately gifted individuals as the moderately gifted differ from the average. Traditionally, each standard deviation (SD) from the norm represents a different group to be served. While in the past, there was no consistency in delineating the highly gifted ranges, a new nomenclature is developing that takes into account the burgeoning number of children found who score in the upper regions. Until recently, "profoundly gifted" was a term used to denote scores of 160 or above. However, it is now being reserved for individuals who score above 174, at the 5th SD above the norm.

115-129 mildly gifted
130-144 moderately gifted
145-159 highly gifted
160-174 exceptionally gifted
175+ profoundly gifted

Theoretically, according to the normal curve of probability, there should only be one person with an IQ of 160 in a group of 10,000 people and only one in a million with an IQ of 180. However we are finding many more children in the last two decades than would have been anticipated if intelligence followed the normal curve.

What do we know empirically about these children? In a study of 241 exceptionally and profoundly gifted children, with IQs ranging from 160 to 237+, Karen Rogers and Linda Silverman (1997) found the following patterns:

See DEFINING THE FEW, 36

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HOW TO REACH CAG

CAG OFFICE
5777 W. Century Boulevard, Suite 1670
Los Angeles, CA 90045
Tel: 310-215-1898 • Fax: 310-215-1832
e-mail: CAGOffice1@aol.com
www.CAGifted.org

LETTERS TO THE EDITOR
Margaret Gosfield
3136 Calle Mariposa, Santa Barbara, CA 93105
Tel: 805-687-9352 • Fax: 805-687-1527
e-mail: gosfield@home.com

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NEWS NOTES

THIS IS IT—YOUR LAST EDITION OF THE *COMMUNICATOR!*

Watch for your new ***Gifted Education Communicator*** —arriving in early March.

Pass on the coupon (page 59) to parents and colleagues who don't currently receive the *Communicator.* They'll receive the first issue of ***Gifted Education Communicator*** **free**!

We're going national!

MOTHERS, DAUGHTERS, AND CAREERS: A Study on the Mother-Daughter Relationship in Career Development

Wanted: Mothers and Daughters. Daughters must be in 7th or 8th grade.

Why: An international study with mothers and gifted daughters is being conducted in Munich, Germany and California.

Time Needed to Complete Questionnaires: 15 minutes for mothers, 45 minutes for daughters.

Goal: To shed light on how gifted girls make choices about their future careers and adult lives and to analyze the influence mothers have on these choices. Everything is confidential. No names or individuals will be identified in any way.

Information Needed: Please give your name, your daughter's name, and your address. A questionnaire package will be mailed to you shortly. Thank you for your time and help. All participants will be entered in a $100 drawing.

Contact: Jennifer Nepper Fiebig by e-mail at nepper_fiebig@yahoo.com, 2224 San Ysidro St., Camarillo, CA 93010, or by phone 805-482-4892.

CALENDAR

CAG BOARD MEETINGS

NOVEMBER 17–19, 2000
Palm Springs

JANUARY 19–21, 2001
Ontario

APRIL 27–29, 2001
Los Angeles

JUNE 1–3, 2001
San Francisco

Board Meetings are open to the public. If a meeting is scheduled in your area and you wish to attend, please call the CAG office for specific information.

39TH ANNUAL CAG CONFERENCE
MARCH 2–4, 2001
California Association for the Gifted
"The Whole Child: A Journey of Giftedness"
Sacramento

NATIONAL & INTERNATIONAL CONFERENCES

NOVEMBER 1–5, 2000
National Association for Gifted Children (NAGC)
"Crossroads to the Future
Atlanta, GA
Contact: 202-785-4268

23RD ANNUAL TEXAS CONFERENCE
NOVEMBER 29–DECEMBER 2, 2000
Austin, TX
Contact: 512-499-8248

JULY 31–AUGUST 4, 2001
14th Biennial World Conference
World Council for Gifted and Talented Children
"The World of Information: Opportunities and Challenges for the Gifted and Talented"
Barcelona, Spain
Contact: 818-368-7501 or www.worldgifted.org
Presentation proposals due November 1, 2000

The California Association for the Gifted serves its members in many valuable ways:

- Institutes and conferences for educators and families
- Parenting strategies to nurture giftedness
- Advocacy to assure funds for GATE programs
- Publications about differentiated curriculum and contemporary issues affecting gifted students

CAG is a mission-driven, volunteer-administered, nonprofit association.

FROM THE EDITOR

MARGARET GOSFIELD

Researching and preparing for this issue of the *Communicator* has been an important learning experience for me. In spite of 30 years in gifted education, I discovered there was much I didn't know about highly and profoundly gifted children. It led me to wonder if we in gifted education have marginalized highly and profoundly gifted children just as general education has marginalized gifted education as a whole. After all, there are so few of them, as is pointed out in our lead article, "Defining the Few" by Annette Sheely and Linda Silverman. They go on, however, to present the critical needs of these children and guidelines for recognizing and identifying them.

Highly and profoundly gifted children are so different from "mildly" or "moderately" gifted, that they need exceedingly individualized academic programming. As a result, the parent role in their education is more critical than ever. You should not be surprised, therefore, to see many articles in this issue written by parents describing their efforts to find program matches for their children.

Parent articles include Jill Howard writing about "Making Radical Acceleration Work," and Marilyn Morrison sharing her experiences in "Living With a Highly Gifted Child." Kathleen Julicher provides important information about "Homeschooling Your Highly Gifted Children," while Jennifer Beaver looks at several specific "Schools for the Highly Gifted."

The social and emotional needs of highly and profoundly gifted children are addressed in several articles. Annemarie Roeper shares her Self Actualization and Interdependence (SAI) model in which she sees giftedness in an emotional context with the cognitive as one component. Sharon Lind not only identifies the several types of "overexcitabilities" often seen in highly and profoundly gifted children, she provides strategies to help them make the most of their emotional intensity while minimizing possible negative factors. Elizabeth Mika and Elizabeth Meckstroth share their wisdom in helping children cope in a thoughtful work, "...to Suffer Fools Gladly," a reference to Leta Hollingworth's famous comment.

Stephanie Tolan presents an issue not often discussed, but a reality faced by many or all highly and profoundly gifted individuals in her article, "The Problem of Pain." She also provides strategies to assist children and adults in coping with emotional pain.

We also include some important resources specifically related to highly and profoundly gifted:

- Resource Centers
  - Hollingworth Center in an interview with founder, Kathi Kearney
  - Young Davidson Scholars with comments from Jan Davidson
  - Gifted Development Center directed by Linda Silverman
- Early College Entry Sites with the Advanced Academy of West Georgia as an example
- Websites of interest by Carolyn Kottmeyer
- Bibliography

Finally, we hear the students' point of view from one who lived the experience of a highly gifted young man trying to "survive" his years of schooling. You may not agree with everything he says, but you will surely increase your awareness of the difficulties involved. Andrew Chen shares these experiences in, "What's the Point?"

This issue marks a turning point in the history of our journal. The CAG Board of Directors and the *Communicator* Editorial Board have been making plans for more than a year to expand the journal and offer it by subscription to a national audience.

So look for big changes in the next issue:

- a new name—*Gifted Education Communicator*
- a new look—including a color photo cover
- new faces—including additional national authors
- new features—with five regular contributing authors and two creative illustrators

The first issue of the *Gifted Education Communicator* will be unveiled at the CAG annual conference in Sacramento on March 2, 2001. If you are attending the conference, you will receive your copy when you check in. If you are not able to join us in Sacramento, you can expect your copy in the mail just a few days later.

We are very excited about the future possibilities of the *Communicator* and hope that you like what you see and read. Let us know what you think. ■

PARENT TO PARENT

Regardless of Age...Making Radical Acceleration Work

BY JILL HOWARD

By twelve months, my son was reading signs at the mall. By his second birthday, he could read anything. At around 30 months, after focusing on a "MasterCard" logo, he commented that "Red minus orange equals negative yellow." When he was three, he showed me and asked me to figure out two equations he had written:

A - 1 = 1

A = 10

When I asked him to explain them to me, he smiled with great glee and sang out, "Binary code! Base Two!" Mind you, he was not only working in bases other than decimal, but also using algebraic letter substitutions, entirely self-taught.

We thought school would be a breeze for Peter and for us. We thought that educators would be delighted by Peter's intense curiosity and ability to integrate new knowledge. Instead, we were met with one roadblock after another. The public school would not consider him in any way until he was five, so when he turned four, we placed him in a private school pre-kindergarten. Although he could read and do math as well as or better than the average fourth-grader, the school refused any academic accommodations. The argument was, "If we let him do second-grade science now, what will he do when he is in second grade?" My self-assured, sparkling little boy became intensely sad. He became so clingy to Mommy that I felt like I had to peel him off me at times. In school, he began exhibiting behaviors that showed his unhappiness in a manner very inconsistent with the sweet-natured, nonviolent boy we knew at home.

"The teachers said to his face that he didn't belong in their classrooms. His classmates called him names, pushed, and kicked him."

Finally, my trips to the state capital, my phone calls and letters to everyone within the public school administration paid off. The public school took him from pre-K and placed him, at age five, in a third grade self-contained "highly gifted" classroom. It was wonderful for a little while simply because there were a few new things to learn. However, the teacher's idea of a fascinating project was a report on chickens. Only once was Peter allowed to pick his own topic for study. His favorite book at the time, dog-eared from being read, reread, and taken to bed like a teddy bear, was Stephen Hawking's *A Brief History of Time*. Peter was six, and he decided to do his independent study on quantum physics. He read Weinburg's *The First Three Minutes*, Asimov's *Understanding Physics*, and a book called *Instant Physics* by Tony Roth which he thought was hysterically funny. (The only joke I understood was, "What does a duck with an advanced degree in quantum physics say? Quark, quark!") Physics professors at a nearby university were quite amazed when he joined in their professional conversations.

In the name of "socialization," elementary school teachers forced him to play soccer during recess when he didn't like soccer and never got near the ball (the other kids were three years older and a foot taller, on average.) He would do a wonderfully creative project, and the teacher would say his mommy did it for him, or that some bureaucratic detail meant his project was unacceptable. Some teachers denied that Peter was particularly gifted. One said Peter would be "normal" if we would just make him play Little League baseball. In the school system's never-ending quest for "socialization," they insisted that he repeat fourth grade. His grades were excellent; their rationalization was that he would have to repeat some grades because he simply would not be "ready" for middle school at age eight. No kidding, that was the reason.

Peter was first formally diagnosed as suffering major depressive episodes at age six. He had nothing positive at school. The teachers said to his face that he didn't belong in their classrooms. His classmates called him names, pushed, and kicked him. They obviously picked up on the teachers' repudiation of Peter. It was open season, and Peter was Bambi caught in the headlights. He began inventing excuses not to go to school: headaches, stomachaches—even foot aches! He stayed sad, withdrawn, and clingy. It took him hours to get to sleep at night, and there were periods as long as ten days when he did not eat—at all. He lost significant body weight, and showed little interest in sports or play or even academics.

It was not until he was eight years old and we managed to get him into high school that we rediscovered the sparkling little boy we knew before he started school.

Every expert who has evaluated him has found that he does less well on easier tasks because they are boring and he loses interest. The summer of 1997, a neuropsychologist reported that "failure to place Peter at his *academic* level would result in serious emotional damage."

Eight-year-old Peter entered a local public high school in August 1997. He took upper-level honors and Advanced Placement courses, and he has thrived. It is a whole new world for him where he actually gets to learn "academic stuff" in a school environment where nobody routinely abuses him, physically or emotionally. Most teachers actually encourage him to attend their classes, and his classmates are pretty nice to him. The only complaint from teachers during his first semester was his habit of bursting into song in the middle of class—even during the precalculus exam! Compared to his life-threatening depression in earlier years, these expressions of spontaneous joy were a delightful problem to work on!

During the 1997–98 school year, he took Honors Computer Science, Precalculus, Art III, and Honors Chemistry. The following year he took Advanced Placement Calculus BC, Advanced Placement Computer Science, Honors Music Ensemble, and Spanish I. This past school year (1999–2000) he took Spanish II, Honors U. S. History, Advanced Placement Chemistry, Advanced Placement Physics, and a post-calculus Internet course in Linear Algebra & Multivariable Calculus arranged by the school system through Stanford University.

In the fall of 2000, we plan something different. At the same high school, Peter will go "undercover" as a ninth-grader. He will be almost 12; the incoming freshmen will be about 14. He has signed up to take ninth-grade Honors English, ninth-grade Honors Social Studies (Legal, Economic, and Political Systems), a basic keyboarding class, and a basic computer applications class. He will continue to work on appropriate math at home via the Internet with Stanford. We have a bet going as to how long he can keep his ninth-grade classmates from figuring out that he is in his fourth year of high school. Our goals for the 2000–2001 school year are for Peter to learn how to "hang out" and to work on his organizational skills.

Although it has occasionally been awkward or difficult for Peter in high school, because he did stand out as the only half-pint cruising the hallways, he has been happy and healthy there. It is a huge advance from his days of being "Bambi caught in the headlights." ■

JILL HOWARD has been a trial attorney with a special interest in child advocacy since 1977. She is also the Associate Editor of the newsletter for the Hollingworth Center for Highly Gifted Children (www.hollingworth.org). She can be reached at jrhoward54@aol.com.

THE GIFTED DEVELOPMENT CENTER

Another resource for parents of highly and profoundly gifted children is the Gifted Development Center, founded in 1979 by Linda Kreger Silverman. The Center provides a number of services including:

- Presentations for parents, educators, and students
- Consultations in person and by telephone
- Assessments
- Counseling
- Publications

Dr. Silverman is a pioneer in the development of the concept of the "visual spatial learner." She refers to these learners as "individuals who think in pictures rather than words…they learn better visually than auditorally." You will find extensive information regarding this type of learner in the center's website including:

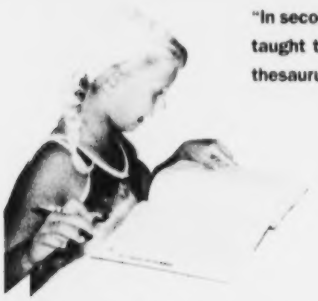
- Introductory information
- Comparison of auditory and visual learner characteristics
- Learning characteristics—strengths and weaknesses
- An identification checklist
- A rating scale for high IQ visual-spacial learners
- Resources and other learning materials
- Visual-spacial learner articles

In addition to Dr. Silverman, the center includes a staff of nine people ranging from the Associate Director, Betty Maxwell, to offsite consultants like Annemarie Roeper, and Associate Annette Revel Sheely who does assessment at the center but also has a private practice in Boulder, CO.

1452 Marion Street
Denver, CO 80218
Tel: 303-837-8378
Fax: 303-831-7465
E-mail:gifted@gifteddevelopment.com
www.gifteddevelopment.com

Living With a Highly Gifted Child

BY MARILYN C. MORRISON



"In second grade, my children had a very wise teacher who taught them how to use a dictionary, encyclopedia, and thesaurus, and her three favorite words were 'Look it up!'"

One minute she's discussing the depletion of the ozone layer, or solving an advanced calculus problem, or teaching herself Portuguese, and the next minute she's crying because her older sister won't share the Legos, or because you won't let her stay up past her bedtime, or because she struck out in the bottom of the sixth inning…Welcome to life with a highly gifted (HG) child!

Coping with Intellect and Emotions

My husband and I used to wonder at the start of each day: Who will emerge from the bedroom—our daughter or her evil twin? Really, though, the surprise at any given hour or minute of the day with HG kids is which will surface: their intellectual selves or their emotional selves? Toddler feelings and teenage hormones don't seem to care much about a child's IQ; they wreak equal havoc on them all. Parents of HG kids have to be a little more on their guard, ready to switch gears at a moment's notice.

Sometimes it's hard to remember not to penalize them for acting their age. We start believing that our children are their intellectual ages, not their chronological ages. However, all 4-year-olds sometimes throw temper tantrums, whether they can read at a fifth-grade level or not, and 14-year-olds are mean to their little brothers whether they are getting A's in AP Chemistry or not. Much of the time, though, HG kids are amazingly grown-up, able to have wonderful conversations on an adult level, and interested in the world in a way that keeps the whole family hopping.

Unending Curiosity

One of the main characteristics of highly gifted children that affects the entire family is their unending curiosity. Sometimes this takes the form of an in-depth passion for one thing, and other times it manifests itself as a desire to learn something about everything, but either way it can lead to adventures and ongoing learning for all family members. My children are good travelers, and our family vacations always turn into educational experiences, even if we don't plan them that way. For example, on our long drive to Lake Tahoe last summer, what was supposed to be a brief rest stop became a fascinating hour learning about tufa formations and brine shrimp at the Mono Lake Visitors Center.

Such intense curiosity, though, can also be daunting to the parents of a highly gifted child; you are expected to know the answer to every question. You will do yourself and your children a favor by teaching them, at a young age, how to learn. In second grade, my children had a very wise teacher who taught them how to use a dictionary, encyclopedia, and thesaurus, and her three favorite words were, "Look it up!" It is important to realize that parents and teachers cannot possibly answer all of an HG child's questions. These children need to know how to find out the answers on their own. It is a skill that will last their whole lives.

The Perfectionist Streak

It is also important to remember, and to remind your children, that they are not necessarily highly gifted in everything. We all have strengths and weaknesses—subjects in which we excel and subjects which are hard for us. In kindergarten, my highly gifted daughter was in awe of her classmate who, although she didn't know the alphabet, was a jump rope champion. Parents of the highly gifted are often torn between wanting to encourage their children to reach their potential and helping them learn to accept their limitations, but both are valuable lessons.

A related concern is teaching HG children how to deal with challenge and frustration. Because perfectionism runs rampant among the highly gifted, it is critical for parents to let children see them make mistakes and accept these mistakes calmly. I know one mother whose children were so afraid to make mistakes that she purposely broke a glass in front of them one day, just so that they could observe that it wasn't the end of the world!

If your family includes one or more highly gifted children, you might be too tired to finish reading this article! It can be physically exhausting to raise HG kids—they tend to have a lot of energy, and it is hard to keep up with them sometimes. Most parents of highly gifted students also find that they must spend extra time advocating for their children throughout their school careers. Every September, you might have to speak to your child's new teacher to educate him or her about the characteristics and special needs of highly gifted students or to offer help in creating an appropriately challenging curriculum for your child. In middle and high school, you may need to intervene with your children's guidance counselors to ensure that they are being programmed into the right classes.

Raising highly gifted children is a challenge, but the experience is rewarding. You may have to work a little harder as a parent, but your child will benefit from your nurturing, and life in your family will certainly never be dull! ■

MARILYN C. MORRISON serves on the CAG Board as the Parent Representative for the Mission Region and has two highly gifted children attending magnet schools in the Los Angeles Unified School District.

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PARENTS

Schools for the Highly Gifted

BY JENNIFER E. BEAVER

To borrow from F. Scott Fitzgerald, "The highly gifted are different from you and me—they have more (fill in the blank)." The list is a long one: more talent, more sensitivity, more questions, and so on.

These are unique children with extraordinary needs. To meet those needs, some parents may opt to go beyond what a regular GATE curriculum provides and seek out a private school that caters to the highly gifted. Following are reviews of three of the country's top choices.

Though each has its own individual flavor and emphasis, they share some important commonalities. They are all small schools with small classes and annual tuitions in the $8,000 to $12,000 range. Perhaps more important than numbers, however, is their dedication to meeting the needs of the whole child—not just his or her academic requirements.

Such schools have benefits for parents as well. All recognize and welcome parental involvement. Rocky Mountain School for the Gifted & Creative, for example, recently changed its mission statement to officially integrate parent participation into its strategic planning process. This is not surprising, given the school's history. Frustrated with the lack of appropriate public educational opportunities for her gifted daughter in the Boulder, CO region, Barbara Mitchell Hutton decided to do something about it—and started her own school. The success of the 65-student facility testifies to the need for such special places. According to Hutton, who serves as the school's director, parents and students from as far away as Tennessee and Florida are considering moves to Colorado to take advantage of what the Rocky Mountain School for the Gifted & Creative has to offer.

The Mirman School
16180 Mulholland Drive
Los Angeles, CA 90049
Tel: 310-476-2868
www.mirman.org/mis.html

A co-ed school for ages 5 to 14, the Mirman School was founded in 1962 to provide mental, physical, social and emotional support to highly gifted children. The Mirman School recognizes that gifted children learn differently and accommodates their special needs with an academically appropriate learning environment that is stimulating, secure, and joyful.

Translated, that means a place where highly gifted kids can feel comfortable with their peers. "They're with other bright kids," said Barry Ziff, Ph.D., Mirman's principal. "They don't feel awkward or different and can almost always find friends with similar interests no matter how bizarre or unusual."

Mirman successfully addresses accelerated learning—a virtually forbidden concept in public schools, where kids are not encouraged to go beyond their grade levels regardless of their talents. "We try not to put a ceiling on growth," explained Ziff. "If kids show a significant ability, they are accelerated by a period of at least one year. We have one 5-year-old who moved up three grade levels in math. For the rest of his subjects, he stayed with others his own age."

Though the students come from all types of backgrounds, they are all gifted. Being totally surrounded by

"They're with other bright kids. They don't feel awkward or different and can almost always find friends with similar interests no matter how bizarre or unusual."

—Barry Ziff
Principal, The Mirman School

those with similar intellectual talents has its advantages, says Ziff. "The older kids get, the more they tone down their brightness level to what is most acceptable by their peers," he explained. "This is particularly common among girls." At Mirman, there is no need for a descent into mediocrity for the sake of popularity or acceptance.

Why do parents choose Mirman? Five years ago, when Darlene Kaplan went looking for a school for her then-preschool daughter, she knew she had discovered it when founder Norman J. Mirman told her: In another school, your child would be put in a special class. She will have the most normal education here, where gifted kids are not considered different; they're part of the norm.

Kaplan believed her daughter would flourish at Mirman, and she was right. "Outsiders think that all these kids have pocket protectors, but they're just regular kids," she said.

Eligibility is determined through testing by the school psychologist or other qualified professional during the fall prior to admission. If a child scores 145 and above, determined by the Stanford Binet test, he or she can interview at the school to see if the child and the school are a good match. In addition to Stanford Binet scores, report cards, teacher recommendations, and scores on other standard achievement tests are reviewed for upper school applicants.

Rocky Mountain School for the Gifted & Creative
2897 Mapleton Ave.
Boulder, CO 80301
Tel: 303-545-9230
www.rms.org

Rocky Mountain defines giftedness in a unique way. Rather than looking at it in relationship to external achievement, the school views giftedness as coming from within—as manifested by the ability to conceptualize at an advanced level. The school is unusual in that it acknowledges the out-of-sync development of many gifted

See SCHOOLS, 38

THE DAVIDSON YOUNG SCHOLARS
Serving Profoundly Gifted Children

There are currently 55 Davidson Young Scholars and they live throughout the United States. How do they connect? Through the Internet and an annual Tahoe Weekend.

The Davidson Young Scholars program was established by Bob and Jan Davidson with the express purpose of identifying and serving profoundly gifted children.

They have two primary reasons for their focus on profoundly gifted children:

1. "...the belief that a focused effort can make a significant, positive difference in the lives of these children who have unique educational and developmental needs."
2. "...that a philanthropic investment in profoundly gifted children today has potential of significant returns to society."

What is involved?

- The application process can be initiated by or for anyone who:
  - is a U.S. citizen between the ages of 4 and 10
  - can demonstrate extreme intellectual precocity
  - will be able to attend the Young Scholars Tahoe Weekend
- A team of expert advisors works with the young scholar and parents to identify and prioritize the child's needs and to develop an action plan.
- An action manager works with the family and expert team to implement the action plan. About half of the young scholars engage in a homeschooling plan—the rest in a variety of options.
- Weekly monitoring and progress checks occur over the course of one year. At the end of that time an assessment is made by the family and the team to determine whether or not the child will continue for another year.
- The young scholar and at least one parent must attend the Tahoe Weekend which provides "a unique opportunity for profoundly gifted young people and their parents to connect with one another."
- Financial assistance is available where needed.

Jan Davidson comments that they are "absolutely committed" to continuing the young scholars program. She states that it is difficult to measure the difference the program is making, but that they are in the fortunate position of "not having to do it by the numbers." Since it is a family philanthropic effort, they need not meet traditional or conventional criteria.

Want additional information? Go to: www.davidson.org. You must have Internet access to participate in the program.

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Removing the Barriers

Homeschooling Your Highly Gifted Children

BY KATHLEEN HOOPER JULICHER

The morning was cool in the schoolroom as the children arrived after having completed their chores, piano practice, and breakfast. They immediately started their work knowing they would be going to the air museum after lunch if all was done. The two ninth graders were doing dissections and then a Latin translation of Caesar. The seventh-grader worked on Algebra II at the board while the fifth-grader finished an Internet research topic about whales. Later in the morning, they gathered for a reading of Shakespeare's *Julius Caesar*. During breaks they talked about the upcoming trip. These are highly gifted children at work. They are homeschoolers.

Homeschooling is a valuable way to school highly and profoundly gifted children because it meets their varied needs so well—academic, social, and emotional. Once merely an ancient method of education, today, in the United States as in other nations, the families of gifted children are rediscovering the merits of homeschooling. The highly or profoundly gifted child is so different from the norm that the individualized nature of homeschooling meets the challenge exceedingly well (Hogan, Julicher & Baker, 1999). Let's look at some of the ways in which homeschooling can help meet the educational needs of exceedingly gifted children.

Asynchrony, or uneven development, causes significant barriers for highly and profoundly gifted children (Webb, Meckstroth, & Tolan, 1982). Intellectual asynchronies usually take three forms:

- The child's learning rate is very much faster than the average.
- The child's learning rates change with respect to time.
- The child's learning rates are different from subject to subject.

For profoundly gifted children, these asynchronies are magnified and if appropriate adjustments are not made, the result is very much worse than for regular children. Each of these asynchronies has its own solution, but each is also much more easily remedied in homeschool than in a conventional school.

Acceleration as a Homeschool Remedy

Acceleration is a good example of one possible remedy for asynchrony in learning. One of the key problems with acceleration is the fact that in a regular school, acceleration of any significant degree usually involves a complete grade level skip of one or more years. In this situation, grade level skips by their nature require consideration of the social ramifications of the skip. Therefore, many educators resist acceleration, especially accelerations of two or more years. They understand that a skip will not occur in a vacuum and that the broader, social aspect of school must be considered. So, for many very bright children, acceleration is discarded as an option very early in the decision-making process. Homeschooling separates the issues attendant with subject matter acceleration from those with grade level acceleration

Homeschooling provides a new decision-making pathway for the child who needs to be accelerated because of his advanced intellectual development. While homeschooling, the decision is made based solely upon the child's academic needs and interests because a radical subject-matter acceleration need not require a grade-level skip. For example, meet Asynchronous Sally who is 7 and ready for beginning algebra; she reads at post-high school level, spells terribly, cannot write in cursive, and is definitely a 7-year-old in behavior. At home, she can be given a program which allows her to take Algebra I, research the history of her family, learn the rules of spelling in English (difficult at best), learn cursive and Greek, and be in Brownies with her 7-year-old friends.

However, the real problem is not the subject-matter skipping, or even grade skipping, but a much more difficult problem—a faster learning rate combined with a deeper way of thinking. Because of these attributes, highly gifted, and especially profoundly gifted

Homeschooling accommodates highly gifted children who go through stages of rapid learning interspersed with stages of slower learning.

children, usually require more than a single grade skip. Their intelligence requires that they move through the material at a much faster rate. This can actually work at odds with a grade skip since once a grade skip has been made, the child merely encounters slightly more advanced material taught at the old rate. Understanding the large rate differential between a highly gifted child and a regular, or even moderately gifted child, is one of the important keys to successful acceleration. This understanding is even more critical for a profoundly gifted student.

Because homeschooling allows a disconnect between grade level and subject matter, a child can drastically reduce the time spent on a topic with no detrimental effects on social life (or on spelling). Sally, who is already advanced in arithmetic, is capable of finishing a math text in about half the time as a regular student. What this means in practical terms, is that she can skip most of the activities in a math text, merely reading the material and going on, with or without the formality of testing.

The Problem of the Spiral Method

Another way to allow for increased rates of learning is to switch from the spiral method texts. The most widespread tool of modern educational systems (besides the age and grade connection, of course) is the spiral method. In this method, the student proceeds through the same topic over the course of several years, usually six. The difficulty of the topic increases incrementally every year until after all six years are completed, the student should have mastered the material.

If you will imagine a Slinky™ suspended from the ceiling and mentally trace the coil up from the floor, you will see that the same location in the room is traversed over and over again, each time a little higher than the coil below. The spiral method of learning is like the Slinky™ rising toward the ceiling, covering the same topics year

See HOMESCHOOLING, 42

QUESTIONS PARENTS ASK ABOUT HOMESCHOOLING

1. **Who is responsible—the parent or the child?** There is much debate on this topic, but a balanced view is that as children mature they should accept more of the responsibility for their own education. This includes decision making.
2. **Is homeschooling legal?** Yes, of course, and in every state. Visit the website of Home School Legal Defense for a state-by-state summary of homeschooling laws and rulings (www.hsld.org).
3. **What is a parent's role as an educator, distinct from that of being a parent?** Some parents feel that their role as a parent will be confused with their role as teacher. This is usually not a problem if the children are learning to be fairly independent in their schooling and if the teaching parent is also a learner in attitude.
4. **Is perfectionism a problem?** Many homeschooling parents are perfectionists. This can be a problem when it is time for a skip or a session of compacting. Perfectionist parents tend to resist skipping materials, activities, or grades. They also tend to be conservative in schooling technique. This is not bad, merely a uniqueness typical of gifted people (even parents). A problem with perfectionism is that it can keep the student at an artificially low rate of learning. In fact, this can happen when the student is a perfectionist, too. Some children simply refuse to move on without filling in every blank in the workbook or doing every problem in the text. Perfectionism should not be allowed to be a handicap to learning.
5. **How do I provide accountability for the authorities?** This is an easy one to answer. Each state is different, but most require little proof of learning. Many states require a nationally standardized test score, or a portfolio, or a signature by a certified teacher showing progress. The parent chooses which to use. No one is allowed to enter your home for inspection and you have the right to homeschool. This right is not given to you by the local educational authorities, though they may like to claim that it is. A letter of intent to homeschool may be required, but the letter is a statement of your intention, not a request for permission.
6. **Am I qualified to teach my children?** Yes, definitely; research has shown that homeschooled students on average score 30–35 percentage points higher than the national average! This phenomenal average is not dependent upon race, socioeconomic background, location, religion, or educational level of the teaching parent (Ray, 1993 & 1999). It is hard to beat one-on-one teaching.
7. **How much and how far should we allow our children to go in their studies?** The answer is: as fast and as far as they want and can go, uninhibited by rules, perfectionisms, age groups, and preconceptions of learning.

—Kathleen Hooper Julicher

1:3

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FULL-TIME EARLY COLLEGE ENTRANCE

Full-time early college entrance is a viable option for some gifted students. A great deal of research has been done on early college entrants and has shown that they excel academically in their college studies and do not experience problems socially. There are currently 11 early college entrance programs at various institutions in the US. In many of these programs, students simultaneously complete high school course requirements while taking college classes. Three of the 11 programs admit students as much as three to four years earlier than usual. Most colleges and universities will admit students as full-time students one or two years early.

The Early Entrance Program at California State University
Phone: 213-343-2287
E-mail: rmaddox@calstatela.edu

Simon's Rock College
84 Alford Road
Great Barrington, MA 01230
Phone: 413-528-7312

The Clarkson School
Price Hall, Clarkson University
P.O. Box 5650
Potsdam, NY 13676
Phone: 315-268-4425
www.clarkson.edu/~tcs

The Early Entrance Program at the University of Washington
Guthrie Annex II, NI-20
Seattle, Washington, 98195
Phone: 206-543-4160
E-mail: cscy@u.washington.edu

The Program for the Exceptionally Gifted at Mary Baldwin College
Staunton, Virginia 24401
Phone: 540-887-7039
E-mail: PEG@cit.mbc.edu
www.mbc.edu/academic/undergraduate/peg/

The Texas Academy of Mathematics and Science
Phone: 940-565-3606
www.tams.unt.edu

The Advanced Academy of Georgia (AAG) at the State University of West Georgia
Carollton, GA 30118
Phone: 770-836-4449
www.westga.edu/~academy

The Texas Academy of Leadership in the Humanities (TALH) at Lamar University
Dr. Mary Gagne
Phone: 409-839-2995

The Residential Honors Program at the University of Southern California
Penny Von Helmolt
Phone: 213-740-2961

Editor's Note: This list was excerpted from a longer article, Here Comes High School: Understanding and Planning for Your Child's Educational Future by Paula Olszewski-Kubilius and Lisa Limburg-Weber, and appeared in the Summer 2000 issue of *Gifted Education Press Quarterly (14)3.*

The Advanced Academy of Georgia

An Example of a Successful Early College Entrance Program

BY SUSAN D. COLGATE

Too few options exist that allow gifted and talented students to accelerate academically and learn in an environment that challenges and stimulates their advanced intellects. The Advanced Academy of Georgia, nestled amid the rolling hills of western Georgia, offers just such a program. Located 50 miles from Atlanta on the campus of the State University of West Georgia, The Advanced Academy of Georgia is one of very few, but growing in number, programs in the United States that provides opportunities for gifted and talented high school juniors and seniors to earn concurrent high school and college credit while participating in a full-time residential program.

The academy began in the fall of 1995 with 19 students. This fall the academy will begin its sixth year with approximately 75 students who were accepted after a rigorous selection process. Minimum requirements for admission are a 3.5 Grade Point Average in academic subjects, SAT math and verbal scores of 530 and 580, respectively (or the ACT equivalents), with a composite score of 1150 (or the ACT equivalent). The average SAT score last year was 1238, from scores obtained when the students were in the 7th through 10th grades. The interests of these students range across the entire academic spectrum, and the academy allows them to follow their intellectual curiosity to wherever it leads them.

Most of our students are Georgia residents, but through the years we have had students from Florida, Oklahoma, Japan, Spain, Nigeria, Bangladesh, and Germany. Academy students come from more diverse backgrounds than those of the larger university community.

The academy is not a residential high school but is an early-entrance-to-college program in which students jointly enroll in their home high schools and the university, and take university classes exclusively for which they earn concurrent high school and university credit. High school graduation requirements are carefully met with a schedule of university classes tailored to fulfill the curriculum for the students' individual high schools. For example, if a student enters the academy as a junior and needs two units (years) of English to satisfy high school graduation requirements, she will take four semesters of university English to equal the two units. At the time of graduation, students receive high school diplomas from their high schools and will have earned sufficient credits to be classified as college sophomores or juniors.

"We believe that, as essential as academics are to the lives of our students, it is equally essential to offer opportunities for students to learn to have balance in their lives, to develop their leadership skills, and to have outlets for creative expression and personal development."

Academics

Careful advising and placement testing in English, mathematics, and chemistry ensure that all students are registered for classes according to their academic levels. Exams are administered during new student orientation, and students who demonstrate proficiency in a discipline are exempted from freshman and sometimes sophomore-level classes. Many students are exempted from freshman English composition classes and proceed directly to sophomore literature classes; placement in accelerated science and math courses is common.

The academy is part of the university's Honors College, and our students benefit from the close association between the two organizations. Students are encouraged to participate fully in the honors program and to take honors classes, which are limited in size to 16 to 20 students. Enrolling in these classes, which are taught seminar-style, allows academy scholars to delve deeply into course material, establish friendships with other academically oriented students on campus, and develop important mentoring relationships with professors.

One source of pride for our students is the amount of original research they are able to do on campus. Although not required, students are encouraged to engage in research in topics and with professors of their choosing. Many students have presented their work at regional, national, and international conferences. Every year academy students make research presentations at the National Collegiate Honors Conference.

Model United Nations, Odyssey of the Mind, the Mathematical Contest in Modeling, the United States Physics Team Contest, the American Mathematical Competition, and College Bowl are some of the extracurricular activities of academy students.

Last year's class performed academically in a manner consistent

with previous years. Ten percent of the students earned perfect 4.00 GPAs, and 43 percent earned 3.50 or greater GPAs and were placed on the university's Dean's List. No academy student has ever been dismissed from the university for academic reasons.

Our students have gained admission to some of the nation's most prestigious institutions of higher education upon completion of the academy program and graduation from high school. The only high school student ever to win a Goldwater Scholarship was an advanced academy student.

Resident Hall Programs

While the academy's emphasis and raison d'être is academic, fundamental to our students' success is the residence hall component of the program. Academy students live in a university residence hall that is dedicated to academy and honors students. Two professional staff members reside in the hall and are assisted by Resident Assistants (RAs), two to each floor, who provide support and mentoring to academy students while ensuring compliance with rules and regulations that are consistent with the ages of our students. The student-to-staff ratio is quite low. The RAs, many of whom are former academy students, provide social and educational programming as well as opportunities for community service.

We believe that, as essential as academics are to the lives of our students, it is equally essential to offer opportunities for students to learn to have balance in their lives, to develop their leadership skills, and to have outlets for creative expression and personal development. The residence hall staff is responsible for programming in three major areas: academic, personal, and social. Academic programs have included such topics as alcohol awareness, sexual assault prevention, study skills workshop, stargazing at the observatory, an introduction to summer internship opportunities, and a weeklong event centered on election primaries, during which a mock primary election was held using an actual voter booth.

Programs to enhance personal development have included stress relieving activities, an evening discussion on the topic of religious tolerance, taking and discussing a personality inventory instrument, tips on how to be aware of and to prevent procrastination, and a discussion on how to go back home for the summer after living at college for the year. Many social programs were held throughout the year; the RA staff initiated some events, and others were suggested and organized by the students themselves.

Another important component of the academy program is the Thursday Night Dinner, during which students and staff enjoy dinner together. Dinner is followed by a presentation, often given by a member of the West Georgia faculty or administration. In conjunction with these dinners, the academy sponsors an artist-lecture series for the university and surrounding communities. Thursday night activities are integral to the academy program in that they help to cultivate the family-like atmosphere that is so important to students and staff alike.

For some students, enrollment in the academy offers the novel experience of involvement in a community of academic and intellectual peers. We often joke that the paradox of the academy is that students have to be different to fit in. By that we mean that we have created an atmosphere of acceptance where each member of our community is free to be who he or she is. Naturally, students have more in common with some of their classmates than with others, but we are free from the exclusionary cliques that are pervasive in many high schools. We are proud of the family-like atmosphere that is more than a slogan but a true outcome of our careful and thoughtful efforts to promote an environment where bright students can both thrive and excel.

Dr. Julian C. Stanley, from Johns Hopkins University, past chair of our Board of Trustees and a universally recognized expert on the education of gifted students, calls The Advanced Academy of Georgia "one of the two successful models of early entrance to college programs in the world." The State University of West Georgia and the advanced academy are committed to maintaining a program in which students are able to meet academic challenges head-on while living in a safe and nurturing environment. In the words of a student, "The advanced academy provides an exceptional learning experience while creating a unique environment for advanced students to grow together." ■

"We often joke that the paradox of the academy is that students have to be different to fit in."

SUSAN D. COLGATE, M.A. has been actively working with The Advanced Academy of Georgia since its inception, first serving as a Student Development Counselor and then moving to the position of Director this summer.

CHILDREN ABOVE 180 IQ

By Leta Stetter Hollingworth

1942 (1997 reprint), Ayer Company Publishers
hardcover, $33.95, 332 pp
ISBN: 0-4-5-06467-5

REVIEWED BY ELAINE WIENER

The "book" was always there. It was like a bible on the shelf of professional literature of giftedness. You whispered her name: Leta S. Hollingworth. It was in the library of the co-founder of CAG—Jeanne Delp. It was in the library of her mentor, Dr. Ruth Martinson, and the library of Ruth's mentor, Dr. May Seagoe, who was herself one of Louis Terman's students. It was a literary connector, educator to educator. One held it in one's hands like it was sacred—especially if one was a young, brand-new teacher.

Therefore, revisiting this "heirloom" from the point of view of an experienced educator and the point of view of today's multifaceted definition of "giftedness" felt a bit like sacrilege. Even considering another point of view seemed disrespectful. Rereading *Children Above 180 IQ* was more allowable when I reminded myself that the case studies in this book were written about children around the 1920s and written in that era.

Having any measurement to identify such highly gifted children was a blessing to Leta Hollingworth. She believed that "it was Binet's great and original service that he rendered it possible to determine accurately the permanent intellectual caliber of an undeveloped human being." Today some might question the words "accurately" and "permanent." However, Leta Hollingworth's goal was simply to identify highly gifted children so they could "escape the 'special problems' of general conduct which the most intelligent children face:

1) to find enough hard and interesting work at school
2) to suffer fools gladly
3) to keep from getting negativistic toward authority
4) to keep from becoming hermits
5) to avoid the formation of habits of extreme chicanery."

Children Above 180 IQ has twelve fascinating case studies about extraordinary children whose experiences—some painful—parallel experiences our highly gifted are still enduring. The beauty of this book lies in the chapters which sandwich-in the case studies: The Concept of Intellectual Genius from the viewpoint of the ancients to speculations about genius; Early Scientific Studies of Eminent Adults; Modern (in that day) Approaches to the Study of Ability; and the ending chapters which address personality, social adjustment, and curriculum. The generalizations made then are still applicable and can't help but make us wonder why we haven't solved these problems which were identified with such precise, delicate sensitivity by Leta Hollingworth so very long ago. ■

ELAINE WIENER is Associate Editor for book reviews for the *Communicator*. She can be reached at esw@worldnet.att.net.

LETA STETTER HOLLINGWORTH: A BIOGRAPHY

By Harry L. Hollingworth

(1990) Anker Publishing Co. Originally published in 1943, University of Nebraska Press
hardcover, $35.00, 168 pp
ISBN: 0-9627042-0-2

REVIEWED BY ELAINE WIENER

When reading such incisive, unsentimental case history analyses in *Children Above 180 IQ*, one cannot help but wonder about this icon—this Joan of Arc for highly gifted children. Leta Hollingworth's biography was written by her husband who had his own distinguished career as a member of Columbia University's Barnard College faculty. His attempt to be very objective and professional lends a rather lackluster writing style, but because he punctuates the story with Leta's own remarks taken from her own diaries or writings, the reader is often jolted into a personal relationship with the Leta Hollingworth story.

However, the modern day credit for reintroducing us to Leta Hollingworth belongs to Ludy T. Benjamin, Jr. from Texas A & M University and Stephanie A. Shields from the University of California at Davis. In the early '70s, they and a small number of psychologists were searching for the historical roots of the psychology of women. Leta Hollingworth was a pioneer and made significant contributions to a) the psychology of women and sex differences, b) clinical psychology, and c) educational psychology, with emphasis on the education of the gifted child.

Gifted education was really a smaller part of a larger career. As a matter of fact, Hollingworth's early experience was with "mental defectives." When she tested a

highly gifted child, the contrast was so gripping, her fascination led her down an unexpected path—and at that time, an untraveled path.

Her tenacity and clear vision is not surprising when you read about her early life. The cut-and-dried descriptions of her ancestry are almost tedious: poverty, death of mother, taken from grandparents, stepmother, misery. And then her own young words: "You cannot realize, for syllables will ever halt in their effort to convey life." Then your heart breaks for her.

Before you can indulge in prolonged sympathy, she is on her way. Along that way, she taught school: "She could animate a class of inert high-school pupils into staying after school to discuss the structure of the eye." Being a product of her times, she could not teach after marrying. As negative as we might see this event, it did propel her into earning an M.A. degree from Columbia University which led to the opportunity to administer mental tests and a new area of expertise. A Ph.D and a lifelong career in education at Teachers College, Columbia University plus years of writings, including the studies for *Children Above 180 IQ* followed.

Leta Stetter Hollingworth was so riveting a personality that her husband felt the need to devote a chapter to her extra interests. And as objective and passionless as he tried to make this book, one can so easily read between the lines to realize that this was a love story, too. After her death, he wrote: "In her absence, Hollywyck; (their home) is an empty shell; its rooms are bare and dead. All the features solicitously put there for contented human relations stand like heavy monuments to the brevity of life."

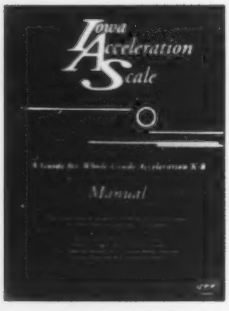
There is one aspect of this biography that makes us wonder about the human psyche—especially the psyche of such a clear thinker. She had reverence for the mind: "Perhaps the most beautiful thing she ever found, which aroused in her a profound esthetic appreciation and therefore commanded her utmost devotion, was the problem-solving dexterity of a bright human mind."

And yet she chose to ignore or apply her own interpretation to information and signs of cancer which might have been dealt with in a more life-prolonging manner. (On the other hand, she may have selected her own judgment which she saw as wiser or more realistic than medical treatment.) She was 53 when she died. ■

ELAINE WIENER is Associate Editor for book reviews for the *Communicator*. She can be reached at esw@worldnet.att.net.

IOWA ACCELERATION SCALE:
A Guide for Whole-Grade Acceleration K–8
By Susan Assouline, Nicholas Colangelo,
Ann Lupkowski-Shoplik, and Jonathan Lipscomb
(1999) Gifted Psychology Press, Inc.
www.giftedpsychologypress.com
paperback, $30, 80 pp.
ISBN: 0910707308

REVIEWED BY JEAN DRUM



The challenge of meeting the educational needs of children who learn very rapidly and seem insatiable in their hunger for new knowledge and expertise is one which troubles teachers and many parents, and it is usually agreed that the perfect answer still eludes us. "Differentness" is not easy to deal with in any of its forms. One method of dealing with this particular "differentness," accelerating or "skipping" a child, has been around for a long time, and it is this method that this publication is all about.

The Iowa Acceleration Scale (IAS) "was developed to provide a comprehensive structure to guide decisions about acceleration." The form is designed to be filled out by parents and teachers working together; it serves as "the foundation for discussion between teachers, administrators, counselors, school psychologists, and parents" when whole grade acceleration is being considered as an option for the student. The form has eleven sections which cover: general information, critical items, school history, prior ability and achievement test results, prior professional evaluation services, academic ability and achievement, school and academic factors, developmental factors, interpersonal skills, attitude and support, scale subtotals and IAS grand total, and guidelines.

The center section of the book consists of two complete examples in which the IAS form was used in making acceleration decisions for students. These examples give the reader a very clear idea of what the scale is, how it works, and what to expect when using it.

Happily, the authors have not stopped with simply giving directions on how to use their scale. The book has two other sections of background information on the subject of acceleration itself which are thorough and interesting. The first is a discussion of the "top ten" issues regarding acceleration, including some case studies.

1. How important are academic ability and achievement in considering whether or not to accelerate?
2. When is the best time to accelerate a student?
3. How important is the age and

school grade of siblings in considering an acceleration?

4. How important are nonacademic, developmental characteristics such as age and physical size?
5. What about acceleration for the student who is advanced academically but not socially-emotionally?
6. What constitutes appropriate school support for an acceleration to proceed?
7. What is the role of the parent?
8. What if the student is involved in competitive school athletics?
9. Why is acceleration an educationally sound option in the current education environment?
10. What might happen if we leave well enough alone and keep students who appear ready for acceleration at their current grade level?

Each of the issues is discussed at some length with pros and cons presented. The authors have already stated that the IAS was "developed to explicitly challenge the assumption that students in grades K-8 should be in a particular grade according to their age rather than according to their readiness for the material offered in that grade." Therefore it should not be surprising that the pros for acceleration rather outweigh the cons in their discussion sections. They do try to be fair, however, and the reader is offered a good deal of valuable material.

However, a word needs to be said about the case studies. In my opinion, the reader is surely going to wonder why the picture is once again presented of gifted children who are misbehaving in class. Ahmed refuses to follow directions and defies his teachers. He has even hit one of them. Surely it is unreasonable to infer that just because a child is in the 98th percentile and learns more quickly than his classmates that he is for this reason driven to such outrageous behavior. April uses her talent to taunt her friends. Rudeness and unkindness toward others are by no means the inevitable reactions of an underchallenged gifted child, but rather the failure of the child to learn, or be taught, acceptable social behavior. The picture of the gifted but bored student who becomes a problem has been widely disseminated and regrettably accepted for many years, and it is time to take a better look at what our gifted students are actually doing with their extra time in the classroom. They're probably just politely "vegging" out, which of course is not acceptable from an educational standpoint, either.

The third section of the book is a first-rate review of the whole subject of acceleration as an educational strategy for meeting the needs of academically gifted students. The relevant studies are surveyed and discussed, and the reader comes away with a satisfyingly helpful view of what has been said about acceleration. There is also an excellent list of references for anyone who wishes to delve more deeply. ■

JEAN DRUM is recently retired as a GATE classroom teacher in Garden Grove USD, and currently teaches English as a second language at both Golden West Community College and Garden Grove USD. She is a former editor of the *Communicator*.

LIBERATING EVERYDAY GENIUS: A Revolutionary Guide for Identifying and Mastering Your Exceptional Gifts

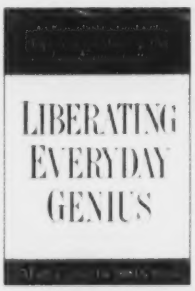
By Mary-Elaine Jacobsen

(1999) Ballatine Books

hardcover, $25.00, 390 pp. ISBN: 0-345-42771-8

paperback, $15.00 (available November 2000)

REVIEWED BY MARILYN LANE



The author, Mary-Elaine Jacobsen, is a teacher, a therapist, and a researcher who states that, "This is a book about normalizing giftedness. My purpose is to show gifted adults how they can bring their gifts to fruition by fully expressing the very qualities that are the foundation of their personality." In the book she examines the five steps that need to be taken in order to bring this about.

Steps One and Two: Identify Thyself and Understand Thyself

It is the author's belief that there are two underlying components of giftedness: heightened receptivity and the urge to perfect. "The promise of high potential and creative intelligence is accompanied by a specific set of personality traits and inner processes—not simply more of some attributes, but an altogether different quality of thinking and experiencing. When put into place, it has the power to change everything."

These differences are intensity, complexity, and drive. Intensity is associated with sensitivity and energy, complexity with complex thinking and perceptivity, and drive with personal mission, urgency, and the need to perfect.

Step Three: Reveal Thyself

Many gifted adults were not identified as such when they were children and the author goes to great lengths to review the history of intelligence testing and debunk myths regarding giftedness. She looks at Howard Gardner's Multiple Intelligences and lists of gifted traits. She proposes another building block to be added to form a new model of human intelligence. She calls it Advanced Development and believes it acts as a keystone to

lock together the fundamental elements on which evolutionary intelligence lies.

Ms. Jacobsen has created a rather complicated formula to determine one's Evolutionary Intelligence: Evl = MI + GT = AD. She offers the readers a self-profile and test to determine their own levels of evolutionary intelligence.

Step Four: Manage Thyself

Once you have identified and understood yourself to be an everyday genius, it is important to reveal yourself by reframing your qualities from the "liabilities" seen by others to the positives. As an example, the everyday genius viewed as too dramatic and sensitive should be acknowledged for empathy, compassion, and responsiveness, thereby arousing motivation and cooperation. Ms. Jacobsen lists Five Basic Truths About Giftedness and Ten Top Criticisms (to reframe). She goes into more depth in looking at the three big determinants of the everyday genius: intensity, complexity, and drive. She describes ways to manage these differences and examines their impact on relationships.

Step Five: Liberating Thyself

The author poses the question, "What does 'liberate thyself' mean for us?" It means "taking ourselves seriously, embracing our differences, maturing our choices from outer control to inner rule, and doing the work and making the sacrifices necessary to live from the inside out."

This publication will be of high interest to the gifted adults among us and to people seeking to further claim and understand their true nature. The book adds to our understanding of giftedness and its potential to affect our everyday world. ■

MARILYN LANE is the GATE coordinator for the Campbell Union School District, a GATE consultant, and serves CAG as the educational representative for the Santa Lucia Region.

Note: The paperback version will be out in November, 2000 under the title, *The Gifted Adult: A Revolutionary Guide for Liberating Everyday Genius.*

YOU KNOW YOUR CHILD IS GIFTED WHEN...
A Beginner's Guide to Life on the Bright Side
By Judy Galbraith
(2000) Free Spirit Publishing, Inc.
www.freespirit.com
paperback, $10.95, 108 pp.
ISBN: 1-57542-076-7

REVIEWED BY CHERIE K. DRUMMOND

When we first encounter GATE or "giftedness," we wonder what it is and what we should be doing for our child. "GATE basics," or "Gifted and Talented 101," could describe Judy Galbraith's delightful new book. Though small in size it has essential information presented in an uplifting, practical way.

In this "beginner's guide," Ms. Galbraith says that the reader will "discover some of the most commonly accepted characteristics of giftedness, along with some of the good things (and no-so-good things) about each one. You'll uncover some myths, find answers to frequently asked questions, and benefit from the wisdom of experts— including parents like you." She includes ways to help your gifted child who is displaying certain characteristics. For example, for the characteristic of focus, passion, intensity, or as she characterizes, "one-track mind," Galbraith suggests paying attention to your child's passions by providing books and magazines on topics of interest, exploring websites together, and finding people who share the passion. We need to share our passions with the children too, and to try to help our children find a balance in life.

Each chapter has examples of children displaying a given characteristic. For "Sensitivity" she describes Courtney, who when just 6, went to a restaurant with her family. She ordered juice, and it arrived in a Styrofoam cup. It was barely on the table when Courtney returned it to the waitress, saying politely, "I'm sorry, but I can't drink from this cup."

"Why?" the waitress asked. "Do you need a different straw?"

"No, thank you," Courtney answered. "The cup is Styrofoam and has chlorofluorocarbons in it, so it's not good for the environment."

The waitress didn't blink or laugh—just smiled as she promised to take care of it. She returned with juice in a glass and solemnly vowed not to use Styrofoam cups again.

Ken Vinton's clever illustrations enhance the reading of the book and understanding of the gifted child. There are many cartoons, but one thread carried through each chapter is the title of "You know your child is gifted when..." Mr. Vinton comments that the logical child "insists that everyone who visits your home bring a canned item for the local food shelf."

Quotations from notables are sprinkled throughout the book and include gems such as the following from James Bray: "Arguments of elitism are foolish. This nation fosters a sense of elitism when it comes to sports or the entertainment industry. Certainly there needs to be no apology for those who wish to nurture the minds of the best young students."

Although written with new GATE parents in mind, all parents and educators will find this book informative and enjoyable. ■

CHERIE K. DRUMMOND is the chair of the CAG Parent Representatives, an education consultant, and mother of two highly gifted young adults. She lives in Poway, California.

OVEREXCITABILITY AND THE HIGHLY GIFTED

BY SHARON LIND

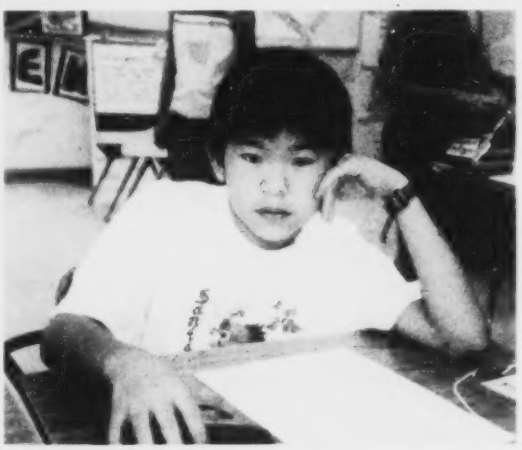
A small amount of definitive research and a great deal of naturalistic observation by professionals, have led to the belief that intensity, sensitivity, and overexcitability are primary characteristics of the highly gifted. These observations are supported by parents and teachers who notice distinct behavioral and constitutional differences between highly gifted children and their peers. In the literature, sensitivity, intensity, and overexcitability are used to describe sometimes overlapping and sometimes distinct behaviors or characteristics. For the purposes of this discussion, *sensitivity* will be defined as receptivity, awareness or the ability to react to cognitive or emotional stimuli (Mendaglio,1995), *intensity* as the depth, duration, frequency or strength of a response (Piechowski, 1991), and *overexcitability* as the "higher than average responsiveness to stimuli" (Dabrowski, 1972, p 303) coupled with reactions which are "over and above average in intensity, duration, and frequency (Dabrowski,1964, p. 71). And since overexcitability seems to subsume the characteristics of intensity and sensitivity, it will be the focus of this article.

The concept of overexcitability (OE) comes from the work of Kazimierz Dabrowski, (1902-1980) a Polish psychiatrist and psychologist, who developed the Theory of Positive Disintegration as a response to the prevalent psychological theories of his time. He believed that conflict and inner suffering were necessary for advanced development—for movement towards a hierarchy of values based on altruism—for movement from "what is" to "what ought to be."

> Dabrowski called his work the Theory of Positive Disintegration to reflect the central and positive role disintegration plays in development. He believed that some individuals are predisposed to experience life more intensely and this predisposes them to frequent and severe crisis [sic]. This heightened sensitivity is based on genetic characteristics Dabrowski called developmental potential (Tillier, 1999).

Developmental potential has three facets: overexcitability, special abilities and talents (intelligence and creativity), and the autonomous factor—the ability to overcome environmental influences and personality type in order to pursue one's ideals. Two of those facets—OE and special abilities and talents speak to the behaviors and needs of the highly gifted.

It is important to emphasize that not all gifted or highly gifted individuals have overexcitabilities. However we do find more people with OEs in the gifted population than in the average population (Dabrowski, 1964; Dabrowski & Piechowski, 1977; Piechowski, 1991; Silverman, 1993; Tiller, 1999).



"It is important to emphasize that not all gifted or highly gifted individuals have overexcitabilities."

Overexcitabilities

Overexcitabilities (OEs) are inborn, heightened abilities to receive and respond to stimuli. They are expressed in increased sensitivity, awareness, and intensity.

> Each form of overexcitability points to a higher than average sensitivity of its receptors. As a result a person endowed with different forms of overexcitability reacts with surprise, puzzlement to many things, he collides with things, persons, and events which in turn brings him astonishment and disquietude (Dabrowski, 1964 p. 7).

The presence of OEs result in a real difference in the fabric of life and quality of experience for overexcitable people and those around them.

Dabrowski identified five areas of OE—Psychomotor, Sensual, Intellectual, Imaginational, and Emotional. A person may possess none, one, or many of these.

> If more than one of these channels, or all five, have wide apertures, then the abundance and diversity of feeling, thought, imagery, and sensation will inevitably lead to dissonance, conflict and tension, but at the same time it enriches, expands, and intensi-

See OVEREXCITABILITIES, 45

Before Referring a Gifted Child for ADD/ADHD Evaluation

BY SHARON LIND

Parents and gifted educators are asked with increased frequency to instruct gifted children to conform to a set of societal standards of acceptable behavior and achievement–to smooth the edges of the square peg in order to fit into a "normal" hole. Spontaneity, inquisitiveness, imagination, boundless enthusiasm, and emotionality are being discouraged to create calmer, quieter, more controlled environments in school. An extension of this trend is reflected in an increase in referrals for medical evaluation of gifted children as ADD/ADHD (Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder). There is no doubt that gifted children can be ADD/ADHD. However, there are also gifted children whose "inappropriate behavior" may be a result of being highly gifted and/or intense.

This intensity coupled with classroom environments and curriculum which do not meet needs of gifted, divergent, creative, or random learners, may lead to the mislabeling of many children as ADHD. To avoid mislabeling gifted children, parents and educators may want to complete the following check list to help them decide to refer for medical or psychological evaluation.

If, after addressing these questions, parents and teachers believe that it is **not** an unsuitable, inflexible, or unreceptive educational environment which is causing the child to "misbehave" or "tune out," or if the child feels out of control, then it is most certainly appropriate to refer a gifted child for ADD/ADHD diagnosis. Premature referral bypasses the educational system and takes control away from students, parents and educators. By referring before trying to adjust the educational environment and curriculum, educators appear to be denouncing the positive attributes of giftedness and/or to be blaming the victim of an inappropriate educational system.

When deciding to refer, parents should search for a competent diagnostician who has experience with both giftedness and attention deficit disorders. It is never appropriate for teachers, parents or pediatricians to label a child as ADD or ADHD without comprehensive clinical evaluation that can distinguish ADD/ADHD from look-alikes with other causes.

GIFTED?	Need More Information	ADD/ADHD?
Contact with intellectual peers diminishes inappropriate behavior		Contact with intellectual peers has no positive effect on behavior
Appropriate academic placement diminishes inappropriate behavior		Appropriate academic placement has no positive effect on behavior
Curricular modifications diminish inappropriate behaviors		Curricular modifications have no effect on behavior
The child has logical (to the child) explanations for inappropriate behavior		Child cannot explain inappropriate behavior
When active, child enjoys the movement and does not feel out of control		Child feels out of control
Learning appropriate social skills has decreased "impulsive" or inappropriate behavior		Learning appropriate social skills has not decreased "impulsive" or inappropriate behavior
Child has logical (to the child) explanations why why tasks, activities are not completed		Child is unable to explain why tasks, activities are not completed
Child displays fewer inappropriate behaviors when interested in subject matter or project		Child's behaviors not influenced by his/her interest in the activity
Child displays fewer inappropriate behaviors when subject matter or project seems relevant or meaningful to the child		Child's behaviors do not diminish when subject matter or project seems relevant or meaningful to the child
Child attributes excessive talking or interruptions on need to share information, need to show that he/she knows the answer, or need to solve a problem immediately		Child cannot attribute excessive talking or interruptions to a need to learn or share information
Child who seems inattentive can repeat instructions		Child who seems inattentive is unable to repeat instructions
Child thrives on working on multiple tasks—gets more done, enjoys learning more		Child moves from task to task for no apparent reason
Inappropriate behaviors are not persistent—seem to be a function of subject matter		Inappropriate behaviors persist regardless of subject matter
Inappropriate behaviors are not persistent – seem to be a function of teacher or instructional style		Inappropriate behaviors persist regardless of of teacher or instructional style
Child acts out to get teacher attention		Child acts out regardless of attention

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"What's the Point?"

A Student Speaks Out

BY ANDREW CHEN

Everyone seems to be so concerned with how, exactly, gifted children should be educated. The most insulting thing a teacher ever said to me was, "Our job is to teach you how to learn." I know that she meant that sincerely and that is what many teachers believe they are charged with doing; but believe me, that is not necessary. We are designed to learn from the minute we are born. We—all of us—are learning machines. For gifted children especially, learning is like eating candy; even when it's not a consciously activated process, they learn every waking minute regardless of what's going on. As long as you provide them with plenty to learn, inspire them, and let them do their job, they will become educated.

Becoming educated then, that is not the most pressing problem I am concerned with. What makes growing up as a gifted child difficult is simply surviving through the environment of childhood—to be emotionally intact at the end of that experience so that your intellect can start doing what it's been preparing for throughout adolescence. Many times a gifted child will not "fit into" their educational environment. There may be endless speculations as to why not, but the only solution I have ever seen work is a social one. In fact, I believe that it's not very important how much measurable learning students do at a place so as long as it's a good experience for them and one which they enjoy.

The Perfect Way To Learn

Let me start by telling you about the single best educational experience I ever had. During my freshman year in high school, I took a geometry class in an extracurricular program for "talented youth" offered by the local community college, the College of Du Page. It was taught by an exceptional teacher named Mr. Samide. Instead of making us do endless amounts of problem sets from a book, he gave us just five extremely difficult problems to do each week. He either came up with the problems himself or took them from ones he had encountered throughout his teaching experience. I spent countless hours sitting at home working on those math problems until they were solved, when I wouldn't even spend five minutes on easy problem sets that I had gotten from my regular school. He gave us geometry problems that forced us to use everything we had ever learned about mathematics in order to solve them, and one of the great aspects of the class was that there was never the "right" way to go about solving a problem. Each of us would work on them on our own and then, in the next class, we would openly discuss our approaches. Mr. Samide even gave us group problems in which we had to work together and feed off each others' ideas to come up with a strategy for solving each problem. Also, if anyone came up with an original problem or conjecture, it would become part of our weekly problem set.

For me, this was the perfect way to learn. It forced me to work on the mechanics of proofs, geometry, algebra, and arithmetic because it was necessary to master those basic skills in order to solve the problems; and I was really inspired to find answers for them. Instead of trying to teach us disjointed blocks of math skills in the conventional bottom-up approach, he gave us coherent problems which we had to break down, learn specific math skills, and then put together to solve the problem at hand—a top-down approach. It was a brilliant way of teaching, and I will always cherish that class.

Later though, I came to realize that a good educational experience is really a double-edged sword. A child's education is bound to be mixed with good and bad teachers, classes, and programs. Unfortunately, the better an educational experience is, the worse it can make mediocre or bad experiences seem. I'm not saying educators should give up trying to provide

See WHAT'S THE POINT, 49

SUGGESTED RESOURCES

Center for Talent Development (CTD)
Northwestern University, Evanston, IL
www.ctd.northwestern.edu/

Center for Talented Youth (CTY)
Johns Hopkins University
www.jhu.edu/~gifted/

Center for Youth Education
College of Du Page, Glen Ellyn, IL
www.cod.edu/CoConEd/CenYouth.htm

Gifted Education Resource Institute (GERI)
Purdue University, West Lafayette, IN
www.geri.soe.purdue.edu/

Supporters and Advocates of Gifted Education (SAGE)
Mt. Prospect, Illinois
www.mtprospect.org/sage/

Simon's Rock College of Bard, Great
Barrington, MA
"The College for Younger Scholars"
www.simons-rock.edu/

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RADICAL ACCELERATION

Responding to academic and social needs of extremely gifted adolescents

BY MIRACA U.M. GROSS

"Acceleration of gifted students is consistently associated with positive changes in their academic development and a readier social acceptance from mental age peers..."

> For some, especially those outside the field of the education of the gifted, acceleration as an educational option is simply out of the question. These individuals seem to view the prospect of a child deviating from the one-grade-per-year lockstep not simply as a modification of a somewhat arbitrary administrative convenience, but rather as a contravention of the laws of nature.
>
> —*Borland*, 1991, p. vii

> Their attitude seems to be that if God had wanted me to be in 9th grade, He would have had me born a year earlier.
>
> —*Carol*, highly gifted 8th grade girl, 1993

Borland's wry and perceptive comment, quoted above, is taken from his foreword to Southern and Jones' fine text, *The Academic Acceleration of Gifted Children* (1991). As all three authors have frequently noted, the majority of educators outside the field of gifted education are extremely wary of the use of acceleration even with the most highly gifted students, and many teachers and building principals argue strongly against it.

Unhappily, the value of acceleration is by no means universally accepted even by educators within gifted education. Southern, Jones, and Fiscus (1989) noted that while coordinators of gifted programs held more positive attitudes toward acceleration than did teachers or school principals, they still viewed the process as potentially hazardous. Gross surveyed a group of 90 Australian teachers and school administrators entering specialized graduate study in gifted education, and compared these educators' attitudes toward various aspects of gifted education with the attitudes of teachers not in specialist study.

Not surprisingly, Gross found that teachers entering specialized training held much more positive attitudes towards gifted students and special provisions for the gifted than did their professional colleagues; however, their attitudes toward acceleration still displayed a considerable degree of ambivalence. Only when they were actually involved in training, when they had become familiar with many of the empirical research studies documenting the positive academic and social effects of acceleration, and when they had been able to meet and talk with gifted students who had been accelerated, did the teachers' attitudes toward acceleration begin to improve.

"...the profoundly gifted student of IQ 190 differs from moderately gifted classmates of 130 to an even greater degree than the latter differ from intellectually handicapped students of IQ 70."

Southern, Jones, & Fiscus (1989) listed four principal concerns of teachers regarding the possible maladaptive effects of acceleration on gifted students. Teachers feared that accelerated students would "(a) lose their academic advantage in later school years, (b) experience difficulties in social and emotional development as a result of being relatively young and mediocre in achievement compared to their older classmates, (c) lack the physical and emotional maturity to handle the stress of acceleration, and (d) become arrogant or elitist in their attitudes toward others" (Southern, Jones, & Fiscus, 1989, p. 29). Concerns expressed most frequently by teachers, however, related to the possibility of social or emotional damage resulting, in later childhood or in adulthood, for students who had been accelerated.

By contrast, as Southern and Jones (1991) and many other researchers have documented, the acceleration of gifted students is consistently associated with positive changes in their academic development and a readier social acceptance from mental age peers, with whom the accelerated student is placed, than chronological peers, by whom he or she was often rejected (Hollingworth, 1926; Terman & Oden, 1947; Pollins, 1983; Gross, 1993). Teachers who remain wary of, or opposed to, acceleration are often unaware of the research which demonstrates that children's social and emotional development is more highly correlated with mental age than with chronological age (Lehman & Erdwins, 1981; Hallahan & Kaufman, 1982; Janos & Robinson, 1985a). Gifted students are more likely to form positive and lasting friendships with older students, with whom they share a commonality of intellectual and psychosocial development, than with age-peers who are likely to be still at a stage of emotional development which the gifted student passed through some years before (O'Shea, 1960; Gross, 1989).

TEACHERS OBSERVE A GIFTED CLASSROOM
With actual involvement in training, teachers' attitudes toward acceleration begin to improve.

Exceptionally Gifted Students

Teachers who oppose early entry or grade-skipping on psychosocial grounds are likely to reject out of hand the proposal that for a minority of extremely gifted children (IQ 160+) a single grade-skip will be insufficient to meet their academic and social needs. Yet over the last 50 years, researchers tracing the intellectual and psychosocial development of exceptionally and profoundly gifted young people have consistently advised that these students are best served by a series of carefully planned and monitored grade-skips spaced over the course of the student's school career (Hollingworth, 1942; Terman & Oden, 1947; Silverman, 1989; Gross, 1992).

Extremely gifted students may benefit from entering college several years early. There is a considerable bank of research evidence which suggests that not only are the academic achievements of early college entrants superior to those of regular college students and equally gifted students who did not enter early (Janos & Robinson, 1985b; Brody, Assouline & Stanley, 1990), but also that the experience of early entrance has no negative effects on, but rather enhances, the social and emotional adjustment of accelerants (Brody & Benbow, 1987; Noble & Drummond, 1992).

Just as the properties of the normal curve of distribution dictate that there will be many more students of average ability than gifted students, so the moderately gifted will outnumber the highly gifted, and the highly gifted will considerably outnumber the exceptional and profoundly gifted. Exceptionally gifted students (IQ 160–179) appear in the population at a ratio of fewer than 1 in 10,000, while fewer than 1 in 1 million students are profoundly gifted (IQ 180+).

Because moderately gifted students so greatly outnumber students at the higher levels of giftedness, the identification procedures which are generally recommended, and the programs which are developed for the gifted and talented, are generally based on the characteristics, learning styles and needs of the moderately gifted. Yet researchers have noted profound differences between moderately and exceptional gifted students on almost every cognitive and affective variable studied (Gross, 1993). In terms of intellectual capacity alone, the profoundly gifted student of IQ 190 differs from moderately gifted classmates of 130 to an even greater degree than the latter differ from intellectually handicapped students of IQ 70. If they are to come anywhere near to maximizing their remarkable intellectual or academic potential, exceptionally and profoundly gifted children require an educational program which differs significantly in structure, pace and content from that which might be offered to the moderately gifted.

For extremely gifted students, contact with intellectual peers, or at least with other students at the same developmental levels as themselves, becomes an urgent necessity. As far back as the late 1920s, Terman found that the subjects in his longitudinal study who had IQs in excess of 170 appeared more solitary than subjects with IQs in the 140–150 range (Burks, Jensen & Terman, 1930). Hollingworth was extremely aware of the social plight of profoundly gifted stu-

See RADICAL ACCELERATION, 51

THE PROBLEM OF PAIN

BY STEPHANIE S. TOLAN

When *Guiding the Gifted Child* was published nearly twenty years ago (Webb, Meckstroth, & Tolan, 1982), parents of exceptionally and profoundly gifted children began calling me, pouring out their stories, and asking for my advice. At that time there was very little information available anywhere about the needs of children at the highest ranges of human intelligence and though our book hadn't focused on that population specifically, the last chapter told the story of my own exceptionally gifted son and the profoundly gifted son of my closest friend. It served as a kind of lifeline to parents who had been struggling with the issues alone. When parents called, they usually cried or cursed as they told their stories—often both. They were desperate.

Today much has changed. There is a great deal of information available to parents including Miraca Gross's excellent book, *Exceptionally Gifted Children*, and *Highly Gifted Children*, the newsletter of the Hollingworth Center; there are also a number of Internet lists which connect parents and children with others facing the same issues. Parents are no longer alone. Thanks to the Internet lists I get fewer phone calls than I used to.

Unfortunately, the calls I do get make it clear that neither more information nor a greater sense of community has eradicated parental desperation. Life for highly gifted children and their families can still be enormously difficult. What the parents who call me are dealing with is pain—often intense pain—their children's and their own.

"Pain isn't a subject we often address directly and that may be one reason why we don't cope with it very well."

Pain isn't a subject that we often address directly, and that may be one reason why we don't cope with it very well. Our culture's attitude is anything but helpful. Watch commercial television and you'll see the two most common responses to pain. The first is: "Have a pain? Take a pill." That used to refer to physical pain, but it has grown to include emotional or psychic pain. In a culture that claims to want to keep children off drugs, drugs are pushed to adults at every turn. Pharmaceutical remedies are now promoted not just for headaches, stomach aches, sore muscles and heartburn, but for depression (often loosely defined), extreme sensitivity, and shyness (now dubbed social anxiety disorder). Worse, these pharmaceutical remedies, without studies to prove either their safety or effectiveness for adolescents and children, are more and more being offered to adolescents, children, and even toddlers.

The second response is: "Do something to fix the situation that causes pain and if it can't be fixed, hire a lawyer and sue someone." If it can't be fixed, the reasoning seems to be, the perpetrators should be identified and punished, and we should be monetarily compensated.

While either of these responses might be appropriate in certain situations, the idea that all pain can or should be addressed by one or the other suggests that pain is an aberration, that we somehow have an inalienable right to a pain-free existence. If we encounter pain there is something wrong, someone to blame, and a critical need to stop

the pain immediately.

But the truth is that life includes pain. For everyone. And the truth for the families of highly gifted children is that there may be a considerable amount of pain caused by the degree of giftedness itself. It comes with the territory.

The Pain of High Range Giftedness

The first most obvious source of pain for the highly gifted is that they don't fit our culture's expectations, norms, and institutions. They are different in a culture that dislikes and fears difference, in a culture that more and more defines difference as pathology. The term normal is too often used to mean average. That leads to the belief that what is not average is abnormal. Therefore, whether a child chooses to be true to herself and risk ostracism or whether she denies important aspects of herself and adopts protective camouflage in order to fit in, pain is likely to be involved in her choice.

We are a communal species; we need each other. But it can be difficult or even impossible for exceptionally gifted children to find other children with whom they can share their deepest thoughts and most passionate interests. They can come to feel like aliens in an alien land.

In addition, their difference can lead to attacks from others. Sometimes what feels to the child like an attack was meant to be ordinary childhood teasing, but the child's unusual sensitivity makes it feel much more serious. Often, though, the attack is quite purposeful. It may come from other children, or it may come from a defensive adult threatened by a child whose vocabulary, knowledge, or understanding of a particular topic is more extensive than his or her own.

The unusual sensitivity that is common to the highly gifted population may cause pain in a variety of ways. Children bright enough to see at an early age the way the world is and also to create for themselves an image of the way things ought to be, must come to terms with the need to live in the gulf between, and so may be subject to a degree of existential depression or despair. Some children have such strong empathy with other people, with animals, or even with the planet itself that they may internalize pain from outside themselves without knowing it.

Parents too, of course, experience an unusual amount of pain from the giftedness itself. Some of it comes from seeing their children in pain, some from their own childhood pain, reactivated as the same sorts of things that happened to them happen to their children. Injustice makes most of us crazy, and the gifted must regularly contend with injustice—often with no remedy. The fact is that extreme giftedness in a family can create a level of pain equal to that of dealing with a severe handicap.

"Our cultural preference for finding the solution to every problem ignores the fact that some situations are not mere problems, but dilemmas, in which all the available choices have negative consequences. Sometimes we can't choose the best answer, we can only look for the least harmful one."

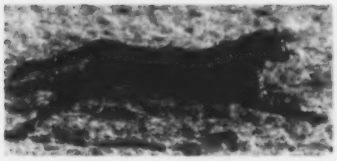
When There's No Solution

In call after call over the last two decades, parents have described situations—often truly appalling ones—that for one reason or another cannot be "fixed." There may be no way to change the person or the situation creating the problem, and no way to remove the child or substitute a safer environment. Sometimes there are strategies that may relieve the current pain but are likely to create equal or possibly greater pain. Our cultural preference for finding the solution to every problem ignores the fact that some situations are not mere problems, but dilemmas, in which all the available choices have negative consequences. Sometimes we can't choose the best answer, we can only look for the least harmful one. Time and time again I have hung up the phone after a conversation with a parent and cried, feeling the intensity of the family's pain and knowing I haven't been able to help because there is no way, at least in the immediate future, to take it away.

I have come at last to realize that what many parents need even more than answers to an immediately painful situation, is a way of seeing the inevitable pain of life that is healthier than our standard cultural view, and a set of strategies for handling pain—what one mother called a "nifty tool kit." Parents need these things for themselves and so that they can teach them to their children.

It's important, first, to recognize that pain, whether physical or emotional, is an individual matter. What causes one person enormous pain may give someone else little more than minor discomfort. We need to be aware of individual differences in the perception of pain, the reaction to pain, and the expression of pain. Some parents have called me in trauma over something that is happening to their child, concerned that the child seems not to be reacting. There are several possible explanations for this. The child may genuinely not feel as traumatized as the parent, the child may feel it but may either deny it or refuse to focus on it, or the child may feel it, react strongly, but hide his feelings rather than expressing them. It's important to observe a child carefully to learn his or her typical pattern. This isn't always easy, especially when parents and children have different pain thresholds and different ways of respond-

See PROBLEM OF PAIN, 38



IS IT A CHEETAH?

BY STEPHANIE S. TOLAN

It's a tough time to raise, teach or BE a highly gifted child. As the term "gifted" and the unusual intellectual capacity to which that term refers become more and more politically incorrect, the educational establishment changes terminology and focus.

Giftedness, a global, integrative mental capacity, may be dismissed, replaced by fragmented "talents" which seem less threatening and theoretically easier for schools to deal with. Instead of an internal developmental reality that affects every aspect of a child's life, "intellectual talent" is more and more perceived as synonymous with (and limited to) academic achievement.

The child who does well in school, gets good grades, wins awards, and "performs" beyond the norms for his or her age, is considered talented. The child who does not, no matter what his innate intellectual capacities or developmental level, is less and less likely to be identified, less and less likely to be served.

A cheetah metaphor can help us see the problem with achievement-oriented thinking. The cheetah is the fastest animal on earth. When we think of cheetahs we are likely to think first of their speed. It's flashy. It's impressive. It's unique. And it makes identification incredibly easy. Since cheetahs are the only animals that can run 70 mph, if you clock an animal running 70 mph, it's a Cheetah!

But cheetahs are not always running. In fact, they are able to maintain top speed only for a limited time, after which they need a considerable period of rest.

It's not difficult to identify a cheetah when it isn't running, provided we know its other characteristics. It is gold with black spots, like a leopard, but it also has unique black "tear marks" beneath its eyes. Its head is small, its body lean, its legs unusually long—all bodily characteristics critical to a runner. And the cheetah is the only member of the cat family that has non-retractable claws. Other cats retract their claws to keep them sharp, like carving knives kept in a sheath—the cheetah's claws are designed not for cutting but for traction. This is an animal biologically designed to run.

Its chief food is the antelope, itself a prodigious runner. The antelope is not large or heavy, so the cheetah does not need strength and bulk to overpower it. Only speed. On the open plains of its natural habitat the cheetah is capable of catching an antelope simply by running it down.

While body design in nature is utilitarian, it also creates a powerful internal drive. The cheetah needs to run!

Despite design and need however, certain conditions are necessary if it is to attain its famous 70 mph top speed. It must be fully grown. It must be healthy, fit and rested. It must have plenty of room to run. Besides that, it is best motivated to run all out when it is hungry and there are antelope to chase.

If a cheetah is confined to a 10 x 12 foot cage, though it may pace or fling itself against the bars in restless frustration, it won't run 70 mph. **Is it still a cheetah?**

If a cheetah has only 20 mph rabbits to chase for food, it won't run 70 mph while hunting. If it did, it would flash past its prey and go hungry! Though it might well run on its own for exercise, recreation, fulfillment of its internal drive, when given only rabbits to eat the hunting cheetah will run only fast enough to catch a rabbit. **Is it still a cheetah?**

If a cheetah is fed Zoo Chow it may not run at all. Is it still a cheetah?

If a cheetah is sick or if its legs have been broken, it won't even walk. **Is it still a cheetah?**

And finally, if the cheetah is only six weeks old, it can't yet run 70 mph. Is it, then, only a "potential cheetah?

A school system that defines giftedness (or talent) as behavior, achievement, and performance is as compromised in its ability to recognize its highly gifted students and to give them what they need as a zoo would be to recognize and provide for its cheetahs if it looked only for speed. When a cheetah does run 70 mph it isn't a particularly "achieving" cheetah. Though it is doing what no other cat can do, it is behaving normally for a cheetah.

To lions, tigers, leopards—to any of the other big cats—the cheetah's biological attributes would seem to be deformities. Far from the "best cat," the cheetah would seem to be barely a cat at all. It is not heavy enough to bring down a wildebeest; its non-retractable claws cannot be kept sharp enough to tear the wildebeest's thick hide. Given the cheetah's tendency to activity, cats who spend most of their time sleeping in the sun might well label the cheetah hyperactive.

Like cheetahs, highly gifted children can be easy to identify. If a child teaches herself Greek at age five, reads at the eighth grade level at age six or does algebra in second grade we can safely assume that child is a highly gifted child. Though the world may see these activities as "achievements," she is not an "achieving" child so much as a child who is operating normally according to her own biological design, her innate mental capacity. Such a child has clearly been given room to "run" and something to run for. She is healthy and fit and has not had her capacities crippled. It doesn't take great knowledge about the characteristics of highly gifted children to recognize this child.

However, schools are to extraordinarily intelligent children what zoos are to cheetahs. Many schools provide a 10 x 12 foot cage, giving the unusual

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mind no room to get up to speed. Many highly gifted children sit in the classroom the way big cats sit in their cages, dull-eyed and silent. Some, unable to resist the urge from inside even though they can't exercise it, pace the bars, snarl and lash out at their keepers, or throw themselves against the bars until they do themselves damage.

Even open and enlightened schools are likely to create an environment that, like the cheetah enclosures in enlightened zoos, allow some moderate running, but no room for the growing cheetah to develop the necessary muscles and stamina to become a 70 mph runner. Children in cages or enclosures, no matter how bright, are unlikely to appear highly gifted; kept from exercising their minds for too long, these children may never be able to reach the level of mental functioning they were designed for.

A zoo, however much room it provides for its cheetahs, does not feed them antelope, challenging them either to run full out or go hungry. Schools similarly provide too little challenge for the development of extraordinary minds. Even a gifted program may provide only the intellectual equivalent of 20 mph rabbits (while sometimes labeling children suspected of extreme intelligence "underachievers" for *not* putting on top speed to catch those rabbits!) Without special programming, schools provide the academic equivalent of Zoo Chow, food that requires no effort whatsoever. Some children refuse to take in such uninteresting, dead nourishment at all.

To develop not just the physical ability but also the strategy to catch antelope in the wild, a cheetah must have antelopes to chase, room to chase them and a cheetah role model to show them how to do it. Without instruction and practice they are unlikely to be able to learn essential survival skills.

A recent nature documentary about cheetahs in lion country showed a curious fact of life in the wild. Lions kill cheetah cubs. They don't eat them, they just kill them. In fact, they appear to work rather hard to find them in order to kill them (though cheetahs can't possibly threaten the continued survival of lions). Is this maliciousness? Recreation? No one knows. We only know that lions do it. Cheetah mothers must hide their dens and go to great efforts to protect their cubs, coming and going from the den under deep cover or only in the dead of night or when lions are far away. Highly gifted children and their families often feel like cheetahs in lion country.

In some schools brilliant children are asked to do what they were never designed to do (like cheetahs asked to tear open a wildebeest hide with their claws—after all, the lions can do it!) while the attributes that are a natural aspect of unusual mental capacity—intensity, passion, high energy, independence, moral reasoning, curiosity, humor, unusual interests and insistence on truth and accuracy—are considered problems that need fixing.

Brilliant children may feel surrounded by lions who make fun of or shun them for their differences, who may even break their legs or drug them to keep them moving more slowly, in time with the lions' pace. Is it any wonder they would try to escape; would put on a lion suit to keep from being noticed; would fight back?

This metaphor, like any metaphor, eventually breaks down. Highly gifted children don't have body markings and non-retractable claws by which to be identified when not performing. Furthermore, the cheetah's ability to run 70 mph is a single trait readily measured. Highly gifted children are very different from each other so there is no single ability to look for even when they are performing; besides that, a child's greatest gifts could be outside the academic world's definition of achievement and so go unrecognized altogether. While this truth can save some children from being wantonly killed by marauding lions, it also keeps them from being recognized for what they are—children with deep and powerful innate differences as all-encompassing as the differences between cheetahs and other big cats.

That they may not be instantly recognizable does not mean that there is no means of identifying them. It means that more time and effort are required to do it. Educators can learn the attributes of unusual intelligence and observe closely enough to see those attributes in individual children. They can recognize not only that highly gifted children can do many things other children cannot, but that there are tasks other children can do that the highly gifted cannot.

Every organism has an internal drive to fulfill its biological design. The same is true for unusually bright children. From time to time the bars need [to] be removed, the enclosures broadened. Zoo Chow, easy and cheap as it is, must give way, at least some of the time, to lively, challenging mental prey.

More than this, schools need to believe that it is important to make the effort, that these children not only have the needs of all other children to be protected and properly cared for, but that they have as much *right* as others to have their needs met.

Biodiversity is a fundamental principle of life on our planet. It allows life to adapt to change. In our culture highly gifted children, like cheetahs, are endangered. Like cheetahs, they are here for a reason; they fill a particular niche in the design of life. Zoos, whatever their limitations, may be critical to the continued survival of cheetahs; many are doing their best to offer their captives what they will need eventually to survive in the wild. Schools can do the same for their highly gifted children.

Unless we make a commitment to saving these children, we will continue to lose them and whatever unique benefit their existence might provide for the human species of which they are an essential part. ■

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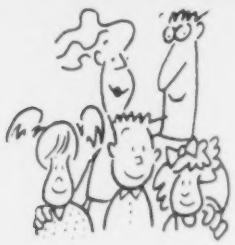
THE HOLLINGWORTH CENTER FOR HIGHLY GIFTED CHILDREN

BY RICHARD BOOLOOTIAN



Highly and profoundly gifted children are considered by some to be the most disadvantaged students in education. These are students who can learn at an extremely fast pace in many subjects at once; they retain knowledge far beyond that of the average child. Highly and profoundly gifted children have educational requirements so unique that schools have great difficulty offering anything that comes close to meeting their intellectual needs. In addition, the fact that most federal, state and local governments do not acknowledge their existence in public schools makes their educational future precarious at best. Furthermore, most teachers are not adequately trained to identify highly and profoundly gifted children. The result is that such students rarely get the opportunity to develop their potentials. Many parents of highly and profoundly gifted children know what they need, but are not able to meet their needs because of economic restrictions and limited educational options.

Because schooling can be troublesome in many respects, parents of highly and profoundly gifted students need a source of support for information, guidance, counseling, and resources that are readily accessible. The Hollingworth Center for the Highly Gifted is one such source.

The Hollingworth Center is a non-profit organization staffed by volunteers and serves as a national support and resource network. It was founded in central Maine by Kathi Kearney in 1983, and has as its primary focus a parent support group aimed at making highly gifted children and their families feel less isolated. The center also serves as a clearinghouse of information and events concerning the needs of highly gifted children. The Center was named after Dr. Leta Hollingworth, who conducted some of the first pioneering studies of exceptionally gifted children, their social and emotional needs, and how best to educate them.

Today, the mission and goals of the Hollingworth Center are clear. They include:

- Fostering an understanding of the special needs of highly gifted people within the educational community and within society-at-large
- Facilitating communication between families of highly gifted children
- Supporting highly gifted children and families by linking them with appropriate services and resources
- Developing research, educational program models, and curricula for these children

The Hollingworth Center meets its mission and goals by providing the following services:

- A quarterly publication for parents and professionals, *Highly Gifted Children*
- An information packet containing resource lists and articles
- Regional support groups for parents of highly gifted children
- A website featuring articles and information relevant to the highly gifted (www.hollingworth.org)
- Consulting services
- Social activities for the children and their families
- Nationwide networking for families, highly gifted children, professionals, schools, and organizations having particular interest in or expertise concerning the highly gifted
- Workshops and conferences

The California Association for the Gifted (CAG) recently conducted a telephone interview with the Founder of the Hollingworth Center, Kathi Kearney.

CAG: How did The Hollingworth Center get started?

Kearney: It started as a parent support group in my living room. I had five phone calls from parents all wanting to talk about their gifted children because as parents they were freaking out; they wanted to talk to other parents with children like their own. After the fifth phone call, we decided to meet in my living room so they could talk to each other.

I had no idea that we were starting a national organization. None of these parents knew each other and I did not even know if they would want to meet again. But they did. They started to meet as a monthly support group, and after a year and a half they said they wanted to know how they could reach out to other families with similar children so they would not feel as isolated as they had. At this point, we started a small non-profit organization staffed by volunteers. That was 15 years ago. A year later, we tried to hold a conference—the first conference ever for highly gifted children.

CAG: What process did you use to establish the group?

Kearney: We established the group on the basis of need. A support group in Maine was needed, and by word-of-mouth, other parents were

The center provides nationwide networking for families, hig

informed as far away as Boston and New York. We received many phone calls from local parents who linked us with other parents throughout the state. We began getting calls from all over the state of Maine; then calls came in from all over the country. There was a need for an organization like ours. Had we started the organization today we would have done so on the internet.

CAG: How many volunteers do you have working for the Hollingworth Center?
Kearney: We have a core group of about ten people who are Advisory Board Members. We have other volunteers who work in various other capacities. For example, our newsletter started out as a post card sent to people to remind them of the time and date of the support group meetings. Then we started to prepare a one page notice of each meeting. The next step was to include information on the other side of the page. Then, we added another page because the postage cost was the same for two pages as it was for one. One thing led to another and we ended up with a newsletter in its current format, which is now a quarterly magazine. Sometimes we use guest editors, but it is basically a volunteer effort.

CAG: What services do you offer to members? To non-members?
Kearney: Members receive the quarterly magazine. We also have a networking online support group open to members.

Our annual national conference is open to all and focuses specifically on highly and profoundly gifted children and adults. The purpose of the conference is to provide support for families of highly gifted children and offer a way for them to connect with each other. Also, educators, counselors, school administrators, and mental health professionals are welcome at the conference where they can find clear and accurate information about this population as well as effective teaching and counseling strategies.

CAG: How many US organizations are dedicated to highly and profoundly gifted children?
Kearney: There are not very many. One is the Davidson Young Scholars. This is a program very specifically for 4 to 10 year olds. It offers services to profoundly gifted young people and their families. There is also the Gifted Development Center which is primarily an assessment center but also provides counseling and parenting support. Another group, the National Gifted Children's Fund provides financial aid to families who are unable to meet the financial burden alone. Some additional support areas offered by this group includes mentoring, tutoring, and summer school activities.

CAG: How is the Hollingworth Center different from or similar to the other organizations you mentioned?
Kearney: Each of the organizations has its own specific mission and its own specific approach to dealing with highly and profoundly gifted individuals. These organizations are found in different parts of our country and they talk to each other a great deal. In fact some of the individuals are on the Advisory Boards of each others' groups. It is not like everyone is working totally separately. For example, we sometimes refer families to the Gifted Development Center for testing. Our organization does not offer this assessment. In this manner we complement one another. We are a large country and geography plays a big role. Not everyone can travel to Denver to be tested. Not everyone has a child between the ages of 4 and 10. The organizations are scattered from the West Coast to the East Coast. We need these groups to offer whatever support is available to meet the needs of highly and profoundly gifted children and adults.

Our Center is primarily a resource center. We do a lot of support networking. We connect people with other resources around the country, and with permission, we connect families with others that have kids like their own.

A part of our mission is to get information into the hands of the general community. We realized early that if we limited our efforts to working only within existing gifted education and general education organizations, it would be more difficult to get the information out. We could expect to get only get one or two articles a year in their publications. In short, families felt very strongly that they wanted an organization specifically focusing on highly and profoundly gifted kids. We also felt very strongly that it was important to get information out to the general public that the kids exist and to provide strategies to work effectively with them.

We started a separate organization, a separate annual conference, and a newsletter magazine to provide this information and support.

For more information on organizations dedicated to serving highly and profoundly gifted, please refer to the list below for their URLs.

Gifted Development Center
www.gifteddevelopemnt.com

National Gifted Children's Fund
http://ngcfcharity.org

Davidson Institute: Young Scholars Program
www.davidsoninstitute.org

Hollingworth Center for Highly Gifted Children
www.hollingworth.org

RICHARD BOOLOOTIAN is Associate Editor of Special Projects for the *Communicator*.

ly gifted children, professionals, schools, and organizations.

Highly & Profoundly Gifted Children: A Bibliography

COMPILED BY KATHI KEARNEY

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KATHI KEARNEY is a gifted education consultant and the founder of the Hollingworth Center for Highly Gifted Children. She can be reached at: kkearney@midcoast.com.

The Internet and the Highly Gifted Child

BY CAROLYN KOTTMEYER

Internet resources for and about highly gifted children abound, and offer information and support for the parents, educators, counselors, and other people tasked with raising and educating these exceptional children, plus tons of wildly varied information for the children themselves. (For the purposes of this article, I will use highly gifted to refer to highly, exceptionally, and profoundly gifted children.)

Parent Resources

Parents are often the first to notice the differences between their highly gifted child and other children. Resources that clarify these differences and offer ideas and insight can be invaluable to parents. Internet resources specifically about highly gifted children include the Davidson Foundation site, www.davidson-foundation.org, where you will find many questions and answers about profoundly gifted children. Another excellent source of information on all levels of giftedness, but with a focus on the highly gifted child, is the Gifted Development Center (GDC), www.gifteddevelopment.com. The GDC site is full of research on the highly gifted child, testing issues, and the largest known collection of information on visual-spatial learners.

"Probably the most valuable resource the Internet can provide the family of the highly gifted child is the opportunity to network with other families of highly gifted children around the world."

Hollingworth Center for Highly Gifted Children, www.hollingworth.org, offers articles and other resources, both for home schooling and traditional schooling families. Hollingworth also hosts an annual real-life conference that gathers highly gifted children and their families along with experts in the field for a brief but powerful weekend of networking, information exchange, and a wonderful feeling known as "home planet." SENG - Supporting Emotional Needs of the Gifted, www.SENGifted.org, offers support for the emotional needs which are often accentuated in the highly gifted child.

Internet Networking

Probably the most valuable resource the Internet can provide the family of the highly gifted child is the opportunity to network with other families of highly gifted children around the world. While there might not be another highly gifted child near your child's age or interests within miles of home, there are always others on the Internet. Internet support groups take two forms: mailing lists and bulletin boards. The TAGPDQ mailing list offers support for families of "Pretty Darn Quick" children through a mailing list format. Subscribe to the list by sending a mail message to the listserv (mailto:listserv@maelstrom.stjohns.edu) containing only the command "subscribe TAGPDQ {firstname} {lastname}". The listserve will

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GIFTEDNESS IS HEART & SOUL

BY ANNEMARIE ROEPER

"Giftedness includes heart and soul and is not limited to intelligence and achievement."

The traditional model of education tends to look at human beings as basically driven by cognition. It focuses more on that which is testable, on that which can be learned and reproduced. It sees the human being primarily as rational and logical. It sees education as a linear process leading to achievement. It sees giftedness as high achievement and the highly gifted as the highest achievers.

An alternative model of education called, "Self Actualization and Interdependence" (SAI), sees education as a global, all-encompassing process of growth. It sees giftedness in an emotional context in which the cognitive is included. This perspective changes every aspect of education including the goal of education, assessment, curriculum and community structure, and is reflected in the view of the highly gifted.

THE SAI MODEL

The SAI model views human beings as independent decision-makers, driven by a necessity to be true to themselves. It embraces the core of who they are and their striving to actualize emotionally, cognitively, consciously, and unconsciously as well as physically. All of these aspects clamor for a place in the world and stem from each person's unique Self. The Self is the "I," the "I of the beholder." It is the place from which we see and interpret the world and ourselves.

To understand any human being, any child, and certainly any gifted child, we need to focus on the Self, the inner core. The Self has no choice but to pursue its inner goal, the way a flower must follow its inner destination.

The Selves of human beings are the most intricate organisms in the world, mosaics of interlocking parts and systems—some conscious and more unconscious—all forming a whole which fluidly connects with other Selves. There is so much that is mysterious, so much that is unconscious, which determines behavior and feelings.

Through the ages, humankind has been intrigued with the Self, the soul, the psyche. This mystery has inspired a variety of thought, is eulogized in poetry, researched in different branches of psychology, and hotly debated. Education, however, has a tendency to ignore the Self, and doesn't acknowledge its existence as a primary factor or even a reality. It therefore misses much of what is significant in any child and especially in the gifted child. Giftedness includes heart and soul and is not limited to intelligence and achievement.

I would like to describe the Self of the gifted child. What is true for all human beings, is even more apparent in gifted children. The specific characteristics of the gifted lead them more often to be in conflict with their environment. They bump up against outside expectations because their deepened cognitive understanding leads to emotional urgency.

We learn about a child's giftedness not only through cognitive testing, but also through observation, communication, and our own emotional receptiveness. Giftedness is revealed in who children are, how they feel, how they approach the environment, and what is shared in trusting relationships with empathetic adults. Only another human being is an instrument refined enough to recognize the inner world of another human being, and experience the texture of that innerness. A test can only assess those areas that are testable.

The traditional method of assessment uses standardized testing. Its purpose is to find out how much children know, how they learn, to predict how they may succeed, and to determine their strengths and weaknesses, measured against the accepted norm. It essentially asks the question, "How will these children adjust to the expectations of society?"

The SAI model (Roeper, 1999) uses an elaborate careful method of observation. The purpose is not to evaluate against a norm, but rather to understand each Self individually with no strings attached. We look at the Self to discover its passions, its inner-directions, it's cognitive ability, and only then, how it relates to society.

With this accomplished, we can begin to create or find the appropriate learning environment or to make changes according to the inner needs of this child. We ask the question, "How will this child grow?"

Gifted children have greater awareness, a larger horizon, react emotionally to that which they know and experience more than others. For instance, young children who understand that the universe keeps on expanding, feel compelled to think about eternity and infinity. They often can't fall asleep, because this knowledge fills them with strong emotions of awe and terror.

This strong preoccupation is often a sign of giftedness in very young children. A child, Johnny, (a composite of many typically gifted children) agonizes about the meaning of death, and the meaning of life. The thought haunts him. He feels overwhelmed, dizzy, and somehow dislocated relative to his own insignificance. He says, "I feel so scared about dying."

Johnny tells me that he has a whole world in his head, as big as the world outside. It is a world where there are no labels either in his clothes to irritate and scratch his sensitive skin or in his environment to define him; a world that accepts him as he is.

In the outside world, he feels exposed, everything touches him directly. He looks at a flower growing out of a tiny seed. His eyes are full of wonder, but his friends look at him with impatience. "Race you to the corner," says one friend, but Johnny has not even heard him, for now he wonders about the DNA of the flower and he is overcome with the beauty of this miraculous growth. The sense of beauty fills him with such deep emotions that he cannot keep his limbs from moving.

This sense of wonder might occur anywhere. That is why in the classroom, he has not heard a word the teacher has said. When he is not in his inner-world, Johnny measures himself against outside expectations and finds himself wanting.

His eyes fill with tears, when he says to me, "I am stupid. I try hard, but I cannot spell, my handwriting is horrible, and my room is a mess." When this happens, parents and teachers become concerned, and the system defines his behavior as pathological.

However, the child's way of being proclaims giftedness loud and clear. A contradiction occurs: The child has been tested as highly-gifted, but the very actions that exhibit giftedness are interpreted as pathological. This is why it is so important that children are understood within the norm of their emotional giftedness.

"Education must take the lead in creating a new model based upon supporting the growth of the child, creating a comfortable niche for the highly gifted."

Gifted children find themselves in a system which is harmful because it only recognizes the narrow road of expected achievement. They do not fit this system and find themselves in alien territory. They may be bored by what is expected, and also puzzled by it. They are often conscious of being deprived, for the world is so filled with excitement yet they are not allowed to explore and develop their inner agenda.

Seemingly Problematic Behavior

Following, are descriptions of some behaviors which are often interpreted as pathological because they are not seen within the context of giftedness.

Fierce Drive to Learn

Daniel, a four-year-old boy, is a terror in nursery school. He fights, disrupts, and knows how to push everyone's buttons. The general belief is that he has a behavior problem and the school is not equipped to handle him. When, in a last attempt, the teacher asked him in desperation, "Why do you have to act in such a way that makes everyone angry at you?" He answers in great anger, "You fooled me; I thought school was for learning and no one teaches me how to read."

In the ensuing discussion, the teacher proposed that they make a bargain, "You stop fighting, and I will teach you how to read." While others played, she found time to teach him. It truly worked like a miracle. This was clearly a gifted child driven to learn.

Procrastination

This often occurs when the needs of the Self clash with the expectations of society. An 11-year-old girl, Angelica, and I were in a deep conversation; she was totally concentrating and carefully choosing her words. Her need to be understood reflected her desperation, and was a cry for help. We were striving to understand her problem of procrastination. It worried her greatly and together we tried to figure out the reason. She said, "When this happens, I am not exactly bored. It's like you must go down a one-way street the teacher wants you to go. You come to a crossroads, you really want to turn and go where it looks exciting, but you know you are not supposed to go. This is why

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"...To Suffer Fools Gladly"

BY ELIZABETH MIKA AND ELIZABETH MECKSTROTH

The phrase, "...to suffer fools gladly" has become intimately associated with individuals of extreme giftedness. We toss it out like we're in on the lingo of gifted-speak. No need to explain—we understand that the brilliant one out-knows those less intellectually endowed.

Leta Hollingworth, a sensitive, courageous, and creative researcher was the first to associate "...suffer fools..." with extreme giftedness. Her compassion for profoundly gifted children is legendary. Leta's guidance and wisdom are preserved in her prolific publications from 1913 and continuing after her death in 1939, and are still relevant today.

Learning to "Suffer Fools Gladly"

> A lesson which many gifted persons never learn as long as they live is that human beings in general are inherently very different from themselves in thought, in action, in general intention, and in interests. Many a reformer has died at the hands of a mob which he was trying to improve in the belief that other human beings can and should enjoy what he enjoys. This is one of the most painful and difficult lessons that each gifted child must learn, if personal development is to proceed successfully. It is more necessary that this be learned than that any school subject be mastered. Failure to learn how to tolerate in a reasonable fashion the foolishness of others leads to bitterness, disillusionment, and misanthropy (Hollingworth, 1942, pp. 259-260).

"Statistically Insignificant"

The gifted "movement" has been broadened (some say diluted) so that "gifted" has become a "catch all" to define various abilities. It is not unusual for research on identified gifted children to be based on a population with advanced academic achievement in just one subject. Consequently, most research findings are not valid to apply to highly gifted children. The term "gifted" can confuse expectations if we do not discern among the extreme ranges. Although we focus on the highly intellectually gifted in this article—the ones with the most "g" power—still the diversity disclaimer applies. Any way you can describe a highly gifted child, the opposite will define another. In many ways, they differ from each other more than they resemble each other. Sara has a place for everything and everything is in place; yet Sean seems to live in a tornado wake! Implications of "suffer fools..." for highly gifted individuals and those who care about them are as diverse and complex as these intricate people are.

A large part of general intelligence is the depth and breadth to which a person processes information. This internal processing may not result in awesome achievements or test scores. Highly gifted people often attribute important meaning for themselves, others, animals, and their world. At five Marty gives priority to preserving the lives of all insects. Mom's tolerance wanes when she's packing lunches and Marty pleads for help to safely transport the fruit flies outside. What highly gifted people think, feel, and know and their personal significance may be beyond "common sense." Defining highly gifted children is like trying to describe the New World Symphony. We know that at different times and in different situations, one person will exhibit various, even contradictory, physical, emotional, intellectual, and social responses.

Although many highly gifted people have minds like satellite dishes—huge consciousness' and learning almost exponentially by integrating information and ideas with their immense knowledge bases—there are gaps in everyone's knowledge and experience. Every highly gifted child's development is asynchronous; the label does not apply to all parts!

How Do We Teach Children To Suffer Fools Gladly?

We hear this statement and react with mixed feelings. It could imply a predictable aura of superiority around a gifted person who has to endure contacts with the less gifted folk. Fools, in other words. But this needs closer examination: who are the fools with whom the gifted must contend?

There is a continuum from suffer fools gladly to suffer fools badly. There are fools and fools. While we dislike the sound of this word and its implied derogatory meaning, we'd like to focus on different types of "foolishness" gifted children react to. It depends on the circumstances.

...Gladly

Receptive cooperation and an appreciation of human diversity are essential to global awareness and converging economies. We handicap ourselves if we do not honor the values of individual and cultural differences.

The intellectual abilities and achievement of highly gifted children make them capable of noticing that their peers may not know or understand as much about the world and its processes as they do, and that they learn at a different

pace and level. So, one type of foolishness gifted children react to is the intellectual one. We oftentimes see astonishment, frustration, and dismay by highly gifted children upon discovering that others differ from them in their intellectual abilities. It can be frightening and alienating to realize that they know things and understand things that other children do not.

Another type of foolishness is the emotional insensitivity and cruelty observed and experienced by gifted children in everyday life. This is associated with social and emotional spheres of functioning. It is much harder to deal with and more difficult to explain why this type of foolishness takes place, and to guide our children in recognizing ways to react to it.

Frequently, what strikes us as foolish in other people's behaviors are acts that are incompatible with our own tastes and psychological type. For example, in social situations, a staunch extrovert may see strong inhibition and fear exhibited by his introverted colleague as foolish. The introvert, on the other hand, may look at his extroverted friend's talkativeness with similar contempt. But, in the words of K. Dabrowski, "We need to forgive each other our psychological type." The intensity of feelings and experiences of some highly gifted children who also are endowed with overexcitabilities makes them react deeply to what they observe in themselves and others.

The Platinum Rule

We do not want our children to treat others as deficient people to be tolerated. We want them to learn respect for differences in others and the ability to handle the irritation and stress that come from interactions with people, regardless of their intellectual capacities and personality types, despite an age when it is the rage to diagnose ability and performance differences as "disabilities." Gifted people can learn much from paying attention to how other people behave in different situations, if only to understand what kind of person they want to become, what they value, and what they need to work on in their relationships with others. Rather than applying the "Golden Rule," perhaps it would be more appropriate to consider the "Platinum Rule." That is, instead of treating other people as we would like to be treated, respect the fact that not everyone wants what you want! Alternatively, try to compassionately understand what the other person wants and needs. It seems that, in general, compassion is in short supply, and the ability to truly understand another human being is even less common. Inspired by Vivian Paley's charming simplicity in *The Kindness of Children* (1999), we can coach ourselves and our children to regard other's people's behavior through the lens of, "Let me see kindness."

"It is essential that our children recognize that people act from different motives and that no one's behaviors are always rational, justified, moral, or informed."

Because highly gifted children's reference points are their own experiences, many of them are not aware that what is obvious to them may be oblivious to others. You can help children gain awareness of other peoples' perceptions by using the analogy of wearing eyeglasses; not everyone "sees" things the same way they do. It's not their fault; others may not intend to be mean or careless, but they are not conscious of the same factors. When highly gifted children complain that other children do not understand them, we suggest that, after attempting to clarify their intentions and meaning to the kids who "don't get" them, that they focus on trying to decipher the needs, perspectives, and intentions of the other child. Maybe Ritchie's dog just died and that's all he can think about. Maybe Julie is embarrassed that she doesn't understand what you're talking about. As adults, many of us still haven't learned that we need to confirm our messages to make sure that we're "on the same page" as the person we want to communicate with.

In the classroom and at home, you can read and discuss some of the excellent children's books about cultural diversity. Study different philosophies and religions. Ask children to role play the child who just immigrated from Serbia or whose mother just abandoned her family, or argue both sides of controversial issues. One can play the child who lives for soccer and the other the one who wants to become a concert violinist. Let them "walk in their moccasins." For just as highly gifted children suffer from misunderstanding, perhaps others feel diminished by them too. As adults, we can model not fully understanding what our children tell us. We need to probe and ask for clarification.

...Badly

We believe it is unfair to expect that highly gifted children should tolerate expectations and behaviors that damage them. There are still vestiges of the belief that if children are very very smart, they can handle it.

Asynchronous Expectations

In Judy Gailbraith's classic "The Six Great Gripes of Gifted Kids," (1984), we find:

- #5 Parents, teachers (and even friends) expect us to be perfect, to "do our best" all the time.

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DEFINING THE FEW

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- Boys and girls in the group had the same mean IQ.
- Over 99% of parents reported that their children learned rapidly, had extensive vocabularies, excellent memories, and reasoned well.
- 97.9% of parents reported that their children were curious.
- 96.1% of parents stated that their children were mature for their ages at times.
- 95.9% of parents said that their children had excellent senses of humor.
- 94% of these children were described as having a long attention span and being alert as infants or toddlers.
- 90% of parents described their children as "sensitive."
- 79% of parents stated that their children had high energy or activity levels.

From our clinical experience, we know that in families of exceptionally gifted children we find deep and complex people. They tend to have heightened capacities for experiencing not only extreme highs and lows of life, but also extraordinary awareness of details and subtleties. For people in this range, life tends to be rich with sensations and awareness. At times it can be too much. Often described as "highly sensitive," many exceptionally gifted children experience physical sensations to a much greater degree than other children. Forty-four percent of the children in Rogers and Silverman's (1997) study had a heightened sensitivity to clothing tags and other tactile sensations. Many parents of exceptionally gifted children report having to find socks without seams. Their children are so conscious of feeling the seam with their toes that they can't concentrate in school. While not all exceptionally gifted children experience tactile sensitivity, many do have problems with light, sound, or smells.

Children in this range may not understand what it is that makes them different from other children their age but they know they are different. Other children are often intimidated by their mature vocabulary. Other children don't laugh at their sophisticated jokes. Other children don't share their interest in advanced and complex pursuits. Rogers and Silverman (1997) found that exceptionally gifted children had significantly lower social self-concept compared to their confidence in their academic ability. It can be very difficult for these children to find true peers. They tend to be more comfortable with children who are much older than they or with adults.

Academically, exceptionally gifted children react to school in a variety of ways. Some thrive when radically accelerated. One 9-year old child we know spends part of his day at an elementary school and part of his day taking Advanced Placement courses in a high school. He is very happy with this arrangement. A large percentage need to be homeschooled because few public school systems are able to meet the needs of these unusual children. Fortunately, there are more resources now for homeschooling exceptionally gifted children than ever before, especially with the increase in distance learning on the Internet. Young children can now take high school and college level courses online.

Many exceptionally gifted students do well in private gifted schools, especially schools that are willing to create an Individual Education Plan for the student. And there are those children whom no one would suspect are exceptionally gifted. They have found such a bad fit in school that they get poor grades and become behavior problems. We know of one exceptionally gifted high school student who nearly dropped out of high school, even though his ACT score was the highest his school had ever seen. Elizabeth Meckstroth (1995) stated that, "These students may find little meaning in classroom activities and resist waiting for classmates to catch up...Sometimes they may counter unstimulating environments by disruptive acting out, passive withdrawal or psychosomatic stomachaches, headaches, etc."

Why is it important to identify exceptionally and profoundly gifted children?

Educators who work with children of subnormal intelligence find that knowing a child's IQ range helps with placement decisions. Children who are mildly developmentally delayed (IQs between 50 and 75) are able to be educated with special modifications. Children with IQs between 25 and 50 can be trained in specific tasks (Maloney and Ward, 1979). And children with IQs below 25 will typically need custodial care. Differences within the extremes exist at both ends of the IQ continuum.

At the other end of the bell curve, mildly, moderately, highly, exceptionally, and profoundly gifted children also have special identifiable needs and differences. The higher the IQ, the greater the need for differentiated services. Children who are mildly gifted may be able to do well in a regular school, taking honors classes and enrichment courses. Moderately gifted children may do well with a one-year grade acceleration. But children who are exceptionally gifted will likely have a difficult time in school and will need special support to maintain their academic motivation (Gilman and Revel, 1999). These students may also need preventative counseling to help them cope with being so different from their age peers. They will certainly need academic guidance to know what options, such as early college entrance, are available to them.

In addition, when a child is found in the exceptionally gifted range, a variety of unique opportunities become available. For example, one nonprofit charity, the National Gifted Children's Fund, provides financial support for specific educational needs. Another institute, the Davidson Foundation, provides its Young Scholars with comprehensive, ongoing support in academic, social, and emotional areas. Such organizations are

blessings to families struggling with meeting the extraordinary needs of these children.

Difficulties in identifying exceptionally and profoundly gifted children

Imagine that your child's school is going to measure her height and to do so, the school will use a yardstick that is nailed to a wall in the nurse's office. Children shorter than one yard are accurately measured. But if your child is taller than 36 inches and the school has no other way to measure your child above and beyond the yardstick, the school may only be able to tell you that she is 36 inches tall or perhaps they will say she is "at least 36 inches."

This example may seem absurd, but IQ tests follow this procrustean policy. They are not designed to capture the full range of abilities among the most intellectually advanced children. Wechsler tests, such as the WPPSI-R and the WISC-III only go up to a score of 160 (Wechsler, 1989; 1991). And the Stanford-Binet, Fourth Edition only goes up to 164 (Thorndike, Hagen, & Sattler, 1986). Even those who design these tests admit that they are not intended for use with children at the highest levels of intelligence. Elizabeth Hagen, one of the authors of the Stanford-Binet, Fourth Edition, said that "the upper one percent of individuals is not usually well differentiated by our present tests" (Silverman, 1986, p.171).

Assessment of the exceptionally and profoundly gifted

So how are exceptionally and profoundly gifted children identified? The current practice for those who work with the gifted is to start with a recently normed test. If the child scores at the 99th percentile or greater on at least two subtests, retesting is suggested on the Stanford-Binet Intelligence Scale, Form L-M, an older test with a much higher ceiling. It has been our experience that a number of children who score in the moderately or highly gifted ranges on current IQ tests, sometimes score as much as 30, 50, and even 90 points higher on the L-M.

The L-M is the only test available at this time for use with children "at the extremes of mental ability" (Riverside, 1999). John Wasserman, Ph.D., Director of Psychological Assessments at Riverside Publishing has said that the Form L-M is a good option, "given the dearth of intelligence tests with sufficient ceiling to assess extremely gifted children" (personal communication, December 23, 1997). Fortunately, the next version of the Stanford-Binet Intelligence Scale, the Fifth Edition, due in 2003, is expected to have a higher ceiling.

Finding an achievement test (a measure of academic skills) to be used with exceptionally gifted children can also be an arduous task. The Gifted Development Center chooses to use the Woodcock-Johnson Tests of Achievement-Revised because of its ceiling of 200. The Woodcock-Johnson, Third Edition is due out in the fall of 2000, the first achievement test to have a ceiling of 300.

If parents suspect that their child may be in the exceptionally gifted-range, it is highly advisable that the testing be done by professionals who have experience in assessing exceptionally gifted children. There are few test administrators in this category but they can be found at the Hoagies Gifted Website: www.hoagies-gifted.org/psych.htm. Test administrators who have little or no experience with children in this range may misunderstand the child or misinterpret the test results.

These children may be, as Betty Meckstroth (1995) puts it, "Statistically Insignificant," but they do exist, and there seem to be more children in this range than we would expect. Their needs are different from the moderately gifted. It is not always easy to identify exceptionally and profoundly gifted children, but it is important to try. With the right support, they can realize their extraordinary potential and thrive.

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ANNETTE REVEL SHEELY, M.A. is an associate at the Gifted Development Center in Denver, CO. She also has a counseling practice in Boulder, CO.

LINDA KREGER SILVERMAN, Ph.D. is the founder and director of the Gifted Development Center in Denver, CO. She is a licensed psychologist, a noted author, editor, researcher and lecturer on all aspects of giftedness.

SCHOOLS

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kids—and provides an environment designed to support the whole child.

"Internally, these kids have such turmoil; they can't reconcile certain things within themselves," explained Director Hutton. "Someone may be a whiz at algebra but cry when their equations don't work out. Many are perfectionists, with heightened sensitivities. We give them time and permission to live with their emotional state and allow them to work their way out of it."

Why do parents choose Rocky Mountain School for the Gifted & Creative? According to Hutton, they do so because their children are challenged academically and feel safe emotionally, physically, and intellectually.

In addition, teachers are strongly encouraged to continually upgrade their training in gifted education. Combined with a board of trustees that includes such luminaries in the field of giftedness as Linda Silverman and Annemarie Roper, the Rocky Mountain School for the Gifted & Creative has some impressive credentials.

To be considered for admission, a prospective student must have a score of 125 or higher on a standardized IQ test or demonstrated abstract reasoning abilities in the gifted range. Prospective students spend at least two days in the classroom for teacher observation and student interaction to determine compatibility.

Unlike traditional classes, which spend up to one-third of the year in review, Rocky Mountain follows an individual learning plan that allows students to work at their own pace. No student ever has to wait for his or her peers to catch up! Students are grouped by ability and interest in multiage classrooms.

The Sage School
171 Mechanic Street
Foxboro, MA 02035
508-543-961
www.sageschool.org

For gifted kids from preschool through grade 8, The Sage School draws its just-over-100 students from a 35-mile-radius including Boston, MA and Providence, RI. Students are grouped by instructional level rather than chronological age. The average student-to-teacher ration is 8:1.

The school was founded in 1990 on the premise that students must be permitted to learn at their instructional level with pace and depth matching their abilities. Each student has a personalized education plan, determined at the beginning of each school year and reviewed with parents three times during that year. Groupings are flexible and are adjusted as the need arises.

Parental involvement is an important part of life at The Sage School. All parents are members of the nonprofit corporation that governs the school and many volunteer at various locations throughout the facility.

Eligibility is determined by the Wechsler or Stanford-Binet IQ test, along with a school interview.

Extracurricular activities include a science fair, chorus, school newspaper, and various clubs. Summer programs are also available. ■

Note: For a list of additional schools around the country, see Hoagies' Gifted Education Page at www.hoagiesgifted.org and click on "Schools for the Gifted."

JENNIFER BEAVER is Associate Editor for Parent Topics for the *Communicator*; she can be reached at jebeaver@aol.com.

THE PROBLEM OF PAIN

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ing to pain.

When my own son was in a class of older children in which classmates often bullied him and the teacher frequently reminded everyone of how much younger he was, I took him to see a psychologist because I was afraid that his generally cheerful appearance was hiding a level of pain and stress that should be addressed. The psychologist assured me that he was just fine; RJ thought the bullying said more about the bullies than about himself, he rather liked the teacher and so allowed the belittling comments to roll off his back, and his cheerful appearance reflected the fact that he was a very cheerful kid! What I would have found painful, RJ was able to take in stride. A friend of mine has a rule for such a situation: "Never disturb a happy child."

On the other hand, the extremely sensitive child who hasn't been taught to distinguish between levels of pain may go into paroxysms of agony over every tiny bump in the emotional road so that parents become desensitized to the constant expression of pain. They may then ignore serious alarm bells. Or they may become so impatient with the whole issue that they give the child the message that unusual sensitivity is a shameful thing. My father, of stoical German heritage, must have been totally stumped by the problem of raising a "skinless" and highly emotional child. Having done his best to outlaw feelings, he made it clear to me that strong people not only don't show pain, they don't have it in the first place. Pain in our family was proof of poor character, weakness, failure. I've often thought how much easier it would have been for my father to raise my cheerful son instead of me!

It is important to mention that there are a few children, whom some would call "old souls," who come into the world able to handle pain in a unique way. They can apparently do with it what the Buddhist compassion meditation is designed to allow the meditator to

do—absorb the pain of the world, process it through the heart with compassion, and send it out into the world again as love. If you should be lucky enough to have one of these rare children, you may learn more than you will teach.

Perceptions, Definitions and Meaning

How do you perceive and define pain? What does it mean to you? The answers to these questions determine your ability to cope with it.

As parents, it is our responsibility to keep our children from harm. If we equate pain with harm, then we will think it's our job to keep our children from experiencing pain—an impossibility that will create even more pain for us and for them when it comes in spite of our best efforts to keep it at bay. If we think pain is some kind of punishment or an unfair visitation of unnecessary distress, then our ability to contend with it will be marginal. It can grow beyond the immediate experience and take on implications of guilt, injustice, or the hostility of a vengeful god or a malevolent universe, which can be overwhelming. If this is how we view pain, we are likely to teach our children to ignore, deny, run from, or blame themselves or others for pain that can't be immediately stopped, fixed, or avoided. In the worst case scenario this perception of pain can lead to addictions, bitterness, withdrawal, or suicide.

All religious traditions address the issue of pain in one way or another and family religious or spiritual heritage is likely to have important effects on understanding of pain's meaning. These effects can be positive or negative, depending on the family's tradition and on their interpretation of its teachings. But whether you have a religious or spiritual tradition or not, you have a cosmology, a belief system about what the universe is like and what your place in it is, and you will teach this cosmology to your children, if not by word, then by modeling. Einstein is quoted as saying that the most important question each person must answer is whether the universe is a hostile or a friendly place. It will be far easier to handle your own pain and model good strategies for your children, if you believe in a friendly universe!

Practice

The tools described below are readily available to anyone of any age, but all of them require practice. That's why some of the people most able to handle pain are the ones who have had the most pain in their lives. The more we use the tools, the better we get at using them and the better they work. Pain is an excellent motivator, and for some it's quite enough. Others would rather moan and groan and whine about pain, or grit their teeth and stoically endure it, or shriek and rage about having to encounter it, than put out personal effort to cope with it. Using the following tools may require going against a good deal of conditioning, or against our own natural tendencies. If we tend to run from pain, for instance, it isn't going to be easy at first to get ourselves to turn around and face it. But the tools work. They don't take pain out of the world, but they can literally turn lives around and bring light into darkness.

Ten Tools for the "Nifty Tool Kit"

1. Acceptance

Accept that pain is part of life, neither unfair nor intended to ruin your day or your child's childhood. Accepting pain allows you to move through it and out the other side, while denying it shoves it inside, where it does not vanish, but remains and often festers. When someone hurts your child, old, denied pain can sometimes burst like a boil and turn you into a raving maniac, unable to address the issue reasonably.

Accepting pain instead of denying or covering it up, allows us to feel it, experience it for as long as it lasts, and then let it go. Accepting it lets us discover that it can and naturally will go. And once out on the other side of a painful experience, we are likely to discover that something very important has been learned that could have been learned no other way.

2. "One Day at a Time" or "Day-tight Compartments"

The Bible says "Sufficient unto the day are the evils thereof." If we can keep our attention confined to a small space, the pain that fills that space will be easier to handle. In times of moderate pain that space may be a day; in times of intense pain that space may be a minute or even a second. It's possible to endure something briefly that we can't imagine enduring for a long time. If we focus on the moment, we can get through just this one, then just this one, then just this one. If we look back at all the other bad moments there have been and extrapolate from that an infinite number of future bad moments, they all run together into a single eternal pain and we're likely not to be able to handle it.

3. The Blanket

Many children, like Linus, have "security blankets" that provide more than security. They provide comfort. It is important to find out what soothes and comforts us, what soothes and comforts each of our children, and then provide it whenever possible during painful times. It may be a warm bubble bath, or a long walk, or a cuddle and a story. It's important not to think of this as indulgence, but as healing medicine. My parents' generation disallowed thumb-sucking and bemoaned the introduction of pacifiers. The excuse was teeth—thumb-sucking led to braces. But the underlying reason was that the cultural traditions of their time suggested that comforting a child

would make him weak. There is nothing inherently weakening in comfort during a rough time. As long as the mode of comfort doesn't cause immediate or future pain of its own (like alcohol and drugs or too much sugar or chocolate) the dosage may be increased as the need increases.

My parents' generation was not entirely wrong, however. As important as it is to provide comfort, we also need to expect and encourage healing and moving on. Carried too far, offered too often or for too long, comfort can become an end in itself. Providing plenty of love and attention when pain isn't in the picture can help avoid this problem.

4. Other People

We need each other. One of the most important uses of community is support during bad times. Because families with exceptionally gifted children are a minority, it can be difficult to establish as many human-to-human ties as we need. The first step is to seek them out, either in person or through electronic connection, and the second step is to take very good care of the friends we do find. It's easy for people with lots of interests to get so busy that we forget to nurture our relationships. We need to be sure to call or visit friends and arrange for our children to do the same. Write letters. Exchange e-mail. We need to spend time with the people we care about. Time is vital to building relationships.

And don't forget the value of pets for both children and adults. Animals provide enormous support, sympathy and love, and we can gain balance and perspective from the care and love we offer them.

5. Help Somebody Else

Every year during the holidays newspapers are full of advice to those who find the holidays depressing—get out and volunteer to make a pleasant holiday for someone else. Helping somebody else is an excellent way to keep us from being overwhelmed by our own troubles. Sometimes, in the process, we find people whose pain is far greater than our own and we realize that things aren't quite so bad as we thought. Other times, we simply substitute helping and the good feeling that brings, for hurting.

6. This Too Shall Pass

Nothing remains. Nothing stays the same. One of my own favorite sayings is: "There are no caves, only tunnels." It reminds me that no matter how dark and small a space I may be in, there's a way not just out, but through. And outside there's light.

Telling ourselves that nothing lasts reminds us that no pain is forever. But there's another benefit to it as well. Knowing that good things also pass encourages us to appreciate them while they last.

7. Breathe

Focusing on the breath is a technique the Lamaze method teaches for dealing with pain during childbirth and it is the foundation of many meditation practices that work to reduce levels of stress and pain. We all breathe, but seldom do we notice it. Conscious breathing is a tool that's easy to learn, works quickly, and can be used virtually any time, anywhere, under any circumstances. The more you practice it the more quickly it will work to calm and center you. Begin by simply noticing your breath, not trying to control it, just noticing each intake and each outflow of breath. Gradually let your breathing deepen and slow, concentrating on the sensations as the breath moves into and through you.

Most of us breathe from our chests rather than our diaphragms, and changing that can increase the effectiveness of the breathing technique. Take a deep breath and watch to see whether it is your chest or your stomach that moves. If it's your chest, see if you can change the way you are breathing so that the movement happens below your rib cage. To teach children this, have them lie on the floor and place a book on their stomachs. Have them breathe so that they move the book up and down. Then let them experiment with moving first their chests and then the book so that they begin to feel the difference.

A quick way to switch from chest-breathing to diaphragmatic breathing is to take a very deep breath and then let it out in a hard, fast sigh. Doing it once or twice usually accomplishes the switch.

As simple as the breathing technique sounds, it is amazingly effective. Practicing it regularly can make it an important part of daily life, useful not only for times of pain and stress, but for increasing our awareness of positive feelings, bringing us into the moment to experience them more fully.

8. Make a "Terrific Things" List

Bernie Siegel, an M.D. who has worked with cancer patients throughout his career, often advises people who are dealing with life and death issues to make a list of the terrific things that have happened to them in the last week and then share it with someone. It is very easy to notice what hurts, so that in really rough times we may quickly come to believe that pain is all there is. Making a conscious effort to find something "terrific" in every day changes our focus. When we are consciously looking for terrific things, we find many more of them than we thought existed. Most of us have had the experience of learning a new word and then hearing or seeing it used all around us, or buying a car and noticing how many others of the same model are on the road. When we aren't looking for something, we may not see it, even if it's right in front of us.

Since everything is relative, what is terrific during a smooth part of our life's journey might be spectacular, like winning the lottery, while what is terrific in a bad time might

be a glimpse of sunset reflected on the surface of a river when we're stuck in a traffic jam. The important issue here is not what the terrific thing is, but that we identify it as terrific!

9. A Gratitude List

This is a common tool in 12-step programs. At first it can be difficult to be grateful for anything during a time of great pain. But if we take the task seriously and start with the goal of finding five or ten things we are grateful for, and do this every day for a week or a month, our feelings can begin to change. Sometimes we find that there are actually more things to be grateful for than to be hurting about, whether the painful situation that drove us to using this tool has changed or not.

Sometimes a kind of spiritual miracle can occur doing this exercise. We can come close to feeling, if not fully understanding, the mystery of pain. If we concentrate hard enough on gratitude, we may eventually find ourselves able to be grateful not just for the things outside of or around the pain (like being able to see, or to walk, or to think, or not being hit by a bus today) but for the event or the person causing us pain, and eventually for the pain itself. We may discover that pain sharpens our whole experience of life.

10. Joy

How can this be a tool for dealing with pain, when pain and joy seem to be polar opposites? Because joy can be a fundamental aspect of life that exists for us at all times, in all places, whether pain exists simultaneously or not.

Many of us are looking for happiness—its pursuit is a right guaranteed to Americans. We expect happiness to be a big thing, long lasting, we hope even permanent. The idea is that when we find happiness, all the negatives will be superseded in its constant glow.

Joy is different. It is incredibly bright, but may seem brief, fleeting. It is what we need to teach ourselves to notice. There is paradox in the fact that being able to notice it, being determined to notice it, turns it from a fleeting moment to the foundation of all our experience, available to us even when pain brings darkness.

There is a picture book by Leo Lionni titled *Frederick* (Lionni, 1987). If you don't know it, it's worth finding, for yourself as well as for children of any age. It is the story of a mouse who, while the other mice are industriously storing up seeds for the winter, is merely standing and looking—at the sun, at the trees, at the sky. The other mice think he is wasting his time, but he tells them he is working just as they are. Later, during the long hard winter, the mice gradually eat up their whole store of seeds and find themselves cold and hungry. It is then that Frederick shares what he has stored up. He turns his memories of summer beauty into words and fills the cold dark place with light and warmth and beauty.

Frederick is one of those simple, classic stories that works on many levels. It can be seen as a celebration of art and artists. But it is also a story about the truth and strength of joy. Storing images of beauty and moments of joy from our daily lives is something each of us can do if we choose to do it. The greater our store of bright moments, the more aware we will be of their constant presence, their instant availability no matter how dark the world seems at the moment.

Perspective and Choice

Some of you will have noticed that the last three tools are just different ways of saying the same thing. At the bottom of the nifty tool kit there is what might be called the Swiss army knife of tools. It does everything. It's perspective.

Everything in our life-view depends on perspective, viewpoint, the place we're standing at the moment. Photographers know that standing in one spot and shooting a picture five times can give five entirely different photos, depending on the angle of the camera or the focus. An inch this way, an inch that way, and the whole picture changes. Focus close or focus far, and the picture changes. Face into the light or away from it, and it changes. We are always in control of our perspective. We can change focus, back off, take a larger view.

In his powerful book, *Man's Search for Meaning*, Viktor Frankl (1984) says, "We must never forget that we may…find meaning in life even when confronted with a hopeless situation, when facing a fate that cannot be changed. For what then matters is to bear witness to the uniquely human potential at its best, which is to transform a personal tragedy into a triumph, to turn one's predicament into a human achievement. When we are no longer able to change a situation—just think of an incurable disease such as inoperable cancer—we are challenged to change ourselves" (p. 116).

Changing our perspective, changing ourselves, is a choice. Perhaps the most important thing to remember is that, whatever our life situation, whatever the pain, each of us always has that choice. ■

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STEPHANIE TOLAN is co-author of the classic work, *Guiding the Gifted Child*, and writes novels for children and young adults. She serves on the advisory boards of the Hollingworth Center and the *Gifted Education Press Quarterly*, and is a contributing editor for the *Roeper Review*.

HOMESCHOOLING

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after year, in slowly increasing detail. This method is most obviously seen in reading, mathematics, grammar, and composition. After all, it makes sense to do things systematically and progressively. Unfortunately for the highly gifted student, learning may not proceed best in this way.

The asynchronous, highly gifted child grows intellectually at different rates at different times in life. In this case, the best way to proceed with learning is not progressively, but prescriptively. As children are able to comprehend, they should be allowed to learn. This "at your own rate" of learning is the optimum way to become educated for the highly or profoundly gifted learner and is easy to use in homeschool. The way to implement prescriptive learning is to teach students what they do not know, that is, use diagnostic testing to determine what is not already known, skipping what is known.

Prescriptive Learning

Prescriptive learning is easy to do as long as you have some way of separating what is known from what is not. Several tools are: pretests, chapter reviews (although this is not optimum since reviews can be long and tedious), chapter tests, oral quizzing, and casual dialoguing on the topic with the student. Four non-spiral math programs are *Mastering Mathematics*, *Arithmetic the Easy Way*, *Ray's Arithmetics*, and the individualized math programs used by some online courses (Farmer, 1988–1993, 1995). At the higher levels of algebra and beyond, the student may find it best to use the chapter reviews as diagnostic pretests.

The use of diagnostic testing is only one method of compacting a course. Another excellent method is by means of leaving out redundancies. At the high school level, a good example is the first few chapters of the Algebra II text. As the regular student has not done any algebra for two years, having taken Plane Geometry in the interim, it is generally necessary to review the basic concepts of algebraic method. If a gifted student remembered the methods, as shown by pretesting, four or five chapters might be effectively eliminated. One of the most difficult things for a person to do is to skip parts of a text, and it is especially difficult for a perfectionist. The student and parent should remember that it is not necessary to do all the problems, all the chapters, and make perfect scores to have understanding of the concepts.

Changing Rates of Learning

Another asynchrony observed in highly gifted students is that of changing optimum rates of learning. It is very common for highly gifted children to go through stages of rapid learning interspersed with stages of slower learning, just as they go through growth spurts in physical maturation. It is difficult to allow for this in a regular schooling situation, but in the homeschool, the course can be temporarily discontinued and started again a few months later when the student is more amenable to learning the topic.

A brief slowdown in learning can be related to stress, illness, vision problems, a growth spurt, or simply a mental plateau. Four-year-old Mark was happily doing advanced arithmetic until he hit double digit multiplication at which point he refused to go any farther. Four months later, he suddenly understood not only double digit multiplication but division, decimals, and density, an understanding which allowed him to go ahead with two years worth of arithmetic.

Socialization or Social Development?

The young six-year-old sat patiently, sucking his thumb, waiting for the psychologist to finish describing giftedness. When the doctor was done, the little boy turned to his mother and said, "I guess that means I'm OK after all, Mommy." In a traditional classroom, this profoundly gifted child not only learned that he was different but assumed that there was something wrong with him.

In a typical conversation with would-be homeschoolers, the question of socialization usually comes up. This is interesting, however, since the type of socialization in question usually relates to conforming to group expectations, not individual social development. Socialization and conformity to group norms are not the same thing as social development. Social development relates to the maturation of an individual within himself and in relationships with other persons. Conformity is not the goal but rather maturity and secure self-identity.

One of the most important concepts of western civilization is the idea of the value of the individual, and this foundational idea is important to homeschoolers who very deliberately choose not to be a part of an age peer group. Because the identity of the young person does not revolve around an age peer group, he is allowed to mature uniquely and independently; this is social development.

In the case of the profoundly gifted six-year-old above, he had not developed a good self-concept and still struggled with conforming to the group of his age mates. Learning at home helped this young man. On a practical level, a homeschooled student mingles and works with people of all ages and types, not only age peers. This results in a student who accepts diversity, is able to be independent of age peer group choices, and is able to relate to people of different ages. A substantial amount of research on this topic is developing. For the reader who is interested, see Brian Ray's work in *Homeschool on the Threshold* (Ray, 1999).

The Purpose of Special Programming

Resolving the issue of the purpose of gifted education is important to a family with a gifted child. For many educational decision makers, the primary reason to develop gifted education programs is because of the future possibilities and worth of the children to the nation. Thus, the chil-

dren are supported with special programs because of what they might invent or create later on. While such a show of public spirit is commendable, it also misses an important point. Whatever the future value of highly gifted children is to the state, it pales beside the value of the children in themselves. They have a right to an education commensurate with their talents and abilities simply because they exist, and no other reason is necessary. We do not give gifted children appropriate education because of their future usefulness, but because they *need* it. In fact, there are many highly and profoundly gifted children who are leaving regular schools because their fundamental needs as individuals are not being met in that setting (a very difficult job in a regular classroom, by the way).

Tech Kids

Tech kids are another population of highly or profoundly gifted. These are the children who must take things apart, who must know how something works, and who must create their own environments. They are different from other gifted children and very little research has been done on their issues. These future engineers or technical people have, in the past, been relegated to the lower levels of academe until they hit college. At homeschool, you can meet the unique needs of these children by providing hands-on activities in a relatively unstructured environment. They should be allowed to ask questions, receive answers, investigate solutions to problems, construct crazy machines, take apart things, design problem solving devices, and talk to experts in their own areas of interest, from mechanics to college professors. These children will need time to do these non-academic things, time to dream.

The "Detox Period"

Many parents of highly gifted children find that not only do their children not fit well into a regular classroom, but that they might actually be in jeopardy in that situation. Leaving a bad situation can mean several things but the foremost is that the student may desperately need some down time. We call this the "detox period" of homeschooling. During the detox period, students must adapt to the lower level of conflict, pressure, and need to conform. Students in detox should be expected to do chores, help with family projects, and keep reading, researching, or simply investigating interesting topics. They may lose their tempers occasionally, or be frustratingly indecisive with respect to choosing topics to study. On the other hand, they may jump at the opportunity to do their own projects. Children react to beginning homeschooling in very individualized ways, but they all usually need a detox period of some length (Julicher, 1994).

Homeschooling can solve a number of problems connected with educating young highly and profoundly gifted children. These problems center around the asynchronies of the children, both emotional and intellectual, their sensitivities, and their interests. Take advantage of homeschooling and begin your own journey into totally individualized learning.

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TECH KIDS SURVEY

Because Tech Kids are so little understood, Kathleen Julicher is conducting a survey of techies of whatever age—2 to 60. If you are one or know of one, please contact: Julicher@aol com for a survey form. These kids are so rare; please respond!

KATHLEEN JULICHER is principal of The Westbridge Academy, www.westbridgeacademy.com. She has been involved in homeschooling for over 25 years including the schooling of her own four children. She can be reached at: Julicher@aol.com.

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CAG PUBLICATIONS

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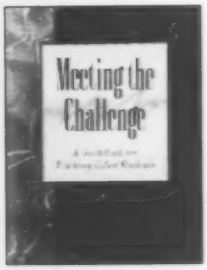

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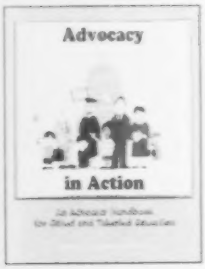

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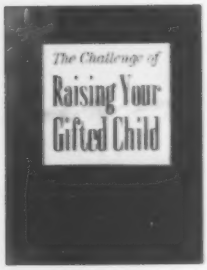

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OVEREXCITABILITIES

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ties the individual's mental development (Piechowski, 1979, p. 29).

OEs then, are not only an integral part of one's personality, they also help to shape a person's view of and reaction to the world. Dabrowski said "One who manifests several forms of overexcitability, sees reality in a different, stronger and more multisided manner" (Dabrowski, 1972, p. 7). Experiencing the world in this unique way carries with it great joys and sometimes great frustrations. The joys and positives of being overexcitable need to be celebrated. Any frustrations or negatives can be positively dealt with and used to help facilitate the child's growth.

The five OEs are described below. Each description is followed by several examples of strategies which represent a fraction of the possible solutions to issues which may cause concern for overexcitable individuals or those who work and live with them. These should serve as a springboard for brainstorming additional ideas which will help improve the lives of overexcitable people.

Psychomotor Overexcitability

Psychomotor OE is a heightened excitability of the neuromuscular system. This Psychomotor intensity includes a "capacity for being active and energetic" (Piechowski, 1991, p. 287), love of movement for its own sake, surplus of energy demonstrated by rapid speech, zealous enthusiasm, intense physical activity, and a need for action (Dabrowski & Piechowski, 1977; Piechowski, 1979, 1991). When feeling emotionally tense, individuals strong in Psychomotor OE may talk compulsively, act impulsively, misbehave and act out, display nervous habits, show intense drive (tending towards "workaholism"), compulsively organize, or become quite competitive. They derive great joy from their boundless physical and verbal enthusiasm and activity, but others may find them overwhelming. At home and at school, these children seem never to be still. They thrive on activity and encourage others to "just do something." They may talk constantly. Adults and peers want to tell them to sit down and be quiet! This Psychomotor OE child has the potential of being misdiagnosed as Attention Deficit Hyperactivity Disorder (ADHD).

Psychomotor Strategies

- Allow time for physical or verbal activity, before, during, and after normal daily and school activities—these individuals love to "do" and need to "do." Build activity and movement into their lives.
- Be sure the physical or verbal activities are acceptable and not distracting to those around them. This may take some work, but it can be a fun project and beneficial to all.
- Provide time for spontaneity and open-ended, free-wheeling activities. These tend to favor the needs of a person high in Psychomotor OE.

Sensual Overexcitability

Sensual OE is expressed as a heightened experience of sensual pleasure or displeasure emanating from sight, smell, touch, taste, and hearing (Dabrowski & Piechowski, 1977; Piechowski, 1979, 1991). Those with Sensual OE have a far more expansive experience from their sensual input than the average person. They have an increased and early appreciation of aesthetic pleasures such as music, language, and art, and derive endless delight from tastes, smells, textures, sounds, and sights. But because of this increased sensitivity, they may also feel overstimulated or uncomfortable with sensory input. Gifted children sometimes have difficulty with sorting out all they hear, feel, or smell. Their sensitivity makes them easily distractible. When emotionally tense, some individuals high in Sensual OE may overeat, go on buying sprees, or seek the physical sensation of being the center of attraction (Dabrowski & Piechowski, 1977; Piechowski, 1979, 1991). Others may withdraw from stimulation. Sensually overexcitable children may find clothing tags, classroom noise, or smells from the cafeteria so distracting that schoolwork becomes secondary. These children may also become so absorbed in their love of a particular piece of art or music that the outside world ceases to exist.

Sensual Strategies

- Whenever possible, create an environment which limits offensive stimuli and provides comfort.
- Provide appropriate opportunities for being in the limelight by giving unexpected attention, facilitating creative and dramatic productions which have an audience. These individuals literally feel the recognition that comes from being in the limelight.
- Provide time to dwell in the delight of the sensual and to create a soothing environment. Remember to allow time to just lounge in a warm scented bath, listen to rain, or just be present in a lovely garden.

Intellectual Overexcitability

Intellectual OE is demonstrated by a marked need to seek understanding and truth, to gain knowledge, and to analyze and synthesize (Dabrowski & Piechowski, 1977; Piechowski, 1979, 1991). Those high in Intellectual OE have incredibly active minds. They are intensely curious, often avid readers, and usually keen observers. They are able to concentrate, engage in prolonged intellectual effort, and be tenacious in problem solving when they choose. Other

characteristics may include relishing elaborate planning and having remarkably detailed visual recall. People with Intellectual OE frequently love theory, thinking about thinking, and moral thinking. This focus on moral thinking often translates into strong concerns about moral and ethical issues—fairness on the playground, lack of respect for children, or being concerned about "adult" issues such as the homeless, AIDS, or war. Intellectually overexcitable people are also quite independent of thought and sometimes appear critical of and impatient with others who can not sustain their intellectual pace. This intellectual intensity seems to cause the greatest difficulty at school and home when children become so excited about learning and thinking that they interrupt or blurt out answers at inappropriate times or are too honest about or critical of others' ideas.

Intellectual Strategies

- Show how to find the answers to questions. This respects and encourages a person's passion to analyze, synthesize, and seek understanding.
- Provide or suggest ways for those interested in moral and ethical issues to act upon their concerns—such as collecting blankets for the homeless or writing to solders in Kosovo. This enables people to feel that they can help, in even a small way, to solve community or worldwide problems.
- If individuals seem critical or too outspoken to others, help them to see how their intent may be perceived as cruel or disrespectful. For example, telling someone "that is a stupid idea" may not be well received, even it the idea is truly stupid.

Imaginational Overexcitability

Imaginational OE reflects a heightened play of the imagination with rich association of images and impressions, frequent use of image and metaphor, facility for invention and fantasy, detailed visualization, and elaborate dreams (Dabrowski & Piechowski, 1977; Piechowski, 1979, 1991). Often children high in Imaginational OE mix truth with fiction, create their own private worlds with imaginary companions and dramatizations to escape boredom. They find it difficult to stay tuned into a classroom where creativity and imagination are secondary to learning rigid academic curriculum. They may write stories or draw instead of doing seat work or participating in class discussions, or they may have difficulty completing tasks when some incredible idea sends them off on an imaginative tangent.

Imaginational Strategies

- Sometimes imaginational people confuse reality and fiction because their memories and new ideas become blended in their mind. Help individuals to differentiate between their imagination and the real world by having them place a stop sign in their mental videotape, or write down or draw the factual account before they embellish it.
- Help people use their imagination to function in the real world. Often those who do not want to follow the paths of others are expected to just fit in. Instead, encourage them to use their path to promote learning and productivity—instead of the conventional school organized notebook, have children create their own organizational system.

Emotional Overexcitability

Emotional OE is often the first to be noticed by parents. It is reflected in heightened, intense feelings, extremes of complex emotions, identification with others' feelings, and strong affective expression (Piechowski, 1991). Other manifestations include physical responses like stomachaches and blushing or concern with death and depression (Piechowski, 1979). Emotionally overexcitable people have a remarkable capacity for deep relationships; they show strong emotional attachments to people, places, and things (Dabrowski & Piechowski, 1977). They have compassion, empathy, and sensitivity in relationships. This sensitivity may lead to interpersonal conflict about the depth, or lack of depth, in a relationship. Those with strong Emotional OE are acutely aware of their own feelings, of how they are growing and changing, and often carry on inner dialogs and practice self-judgment (Piechowski, 1979, 1991). Children high in Emotional OE, are often accused of "overreacting." Their compassion and concern for others, their focus on relationships, as well as the intensity of their feelings may interfere with everyday tasks like homework or doing the dishes because those tasks seem meaningless compared with the needs of humanity.

Emotional Strategies

- Accept all feelings, regardless of intensity. For people who are not highly emotional, this seems particularly odd. They feel that those high in Emotional OE are just being melodramatic. Though we are all melodramatic on occasion, people with high Emotional OE really do feel their emotions with remarkable or atypical strength. If we accept their emotional intensity and help them work through any problems that might result, we will facilitate healthy growth.
- Teach individuals to anticipate physical and emotional responses and prepare for them. Emotionally intense people often don't know when they are becoming so overwrought that they may lose control or may have physical responses to their emotions. Help them to identify the physical warning signs of their emotional stress such as headache, sweaty palms, and stomachache. By knowing the

warning signs and acting on them early, individuals will be better able to cope with emotional situations and not lose control.

General Strategies

It is often quite difficult and demanding to work and live with overexcitable individuals. Those who are not so, find the behaviors unexplainable, frequently incomprehensible, and often bizarre. Overexcitable people living with other overexcitable people often have more compassion and understanding for each other, but may feel conflicts when their OEs are not to the same degree, or when all the overexcitable people are overexcitable simultaneously. Finding strategies for helping children and adults deal with and take advantage of these innate and enduring characteristics may seem difficult. However, resources may be gathered from varied places: Literature regarding counseling, learning styles, special education, and classroom management; parenting books; even popular business texts. Perhaps the best place to begin is with the following general strategies, applicable regardless of which OEs are present.

Discuss the Concept of Overexcitability

Share the descriptions of OEs with the family, class, or counseling group. Ask individuals if they see themselves with some of the characteristics. Point out that this article and many others like it indicate that being overexcitable is OK and it is understood and accepted.

Focus On the Positives

Jointly discuss the positives of each overexcitability when you first introduce the concept, and continue to point out these merits. Sometimes we just focus on the problems these characteristics cause, and forget the benefits which include being energetic, enthusiastic, sensual, aesthetic, curious, loyal, tenacious, moral, metacognitive, integrative, creative, metaphorical, dramatic, poetic, compassionate, empathetic, and self-aware.

Cherish and Celebrate Diversity

An outcome of the pursuit of educational and societal equity has been a diminishing of the celebration of diversity and individual differences. Highly gifted individuals, because of their uniqueness, can fall prey to the public and personal belief that they are not OK. It is vital when discussing OEs that individuals realize that overexcitability is just one more description of who they are, as is being tall, or Asian, or left-handed. Since, OEs are inborn traits, they cannot be unlearned! It is therefore exceedingly important that we accept our overexcitable selves, children, and friends. This acceptance provides validation and helps to free people from feelings of "weirdness" and isolation. By communicating our love or respect of individuals, OEs and all, we pave the way for helping them cope with and take advantage of their OEs.

Another way to show acceptance is to provide opportunities for people to pursue their passions. This shows respect for their abilities and intensities and allows time for them to "wallow" in what they love, to be validated for who they are. Removing passions as consequences for inappropriate behavior has a negative effect by giving the message that your passions, the essence of who you are, are not valuable or worthy of respect.

By celebrating OEs, or one's heritage, or handedness, we are validating the individual and developing self esteem.

Use and Teach Clear Verbal and Nonverbal Communication Skills

All people deserve respect and need to be listened to and responded to with grace. Overexcitable people need this understanding and patience to a greater degree because they are experiencing the world with greater intensity and need to be able to share their intensity and feelings of differentness to thrive. It is vital to learn good communication skills and to teach them to children. Good communication skills are useful on multiple levels, from improving the chances of getting what you want, to nurturing and facilitating growth in others. Regardless of one's motivation for learning these skills, the outcomes will include less stress, greater self-acceptance, greater understanding from and about others, and less daily friction at home, work, or in the grocery store.

When learning communication skills be sure to include both verbal—listening, responding, questioning, telephoning, problem solving (Faber and Mazlish, 1980), and nonverbal—rhythm and use of time, interpersonal distance and touch, gestures and postures, facial expressions, tone of voice, and style of dress (Nowicki, 1992). Verbal and nonverbal skills improve interpersonal communication and provide the skills individuals need to fit in when they wish to, to change the system if necessary, and to treat others with caring and respect.

Teach Stress Management, from Toddlerhood On

Everyone deals with stress on a daily basis. But overexcitable individuals have increased stress reactions because of their increased reception of and reaction to external input. There are many programs and books about stress reduction. The key components are to (1) learn to identify your stress symptoms: headache, backache, pencil tapping, pacing, etc. (2) develop strategies for coping with stress: talk about your feelings to someone, do relaxation exercises, include physical exercise regularly into your day, change your diet, do daily meditations or visualizations, ask for help, develop organizational and time management skills and (3)

develop strategies to prevent stress: make time for fun; develop a cadre of people to help, advise, humor you; practice tolerance of your own and others' imperfections. Teaching and using stress management strategies at home, school, and work facilitates development by helping individuals to gain more control over their lives.

Create a Comforting Environment Whenever Possible

As a way of fending off unwanted and overwhelming stimuli and feelings, intense people need to know how to make their environment more comfortable in order to create places for retreat or safety. These comfort needs will vary from person to person but possibilities include finding places to work or think which are not distracting, working in a quiet or calm environment, listening to music, looking at a lovely picture, carrying a comforting item, being able to move while working, or wearing clothing which does not scratch or cling. Learning to finesse one's environment to meet one's needs takes experimentation and cooperation from others, but the outcome will be a greater sense of well-being and improved productivity.

Help to Raise Awareness of One's Behaviors and Their Impact on Others

Paradoxically, overexcitable people are often insensitive and unaware of how their behaviors affect others. They may assume that everyone will just understand why they interrupt to share an important idea, or tune out when creating a short story in their head during dinner. It is vital to teach children and adults to be responsible for their behaviors, to become more aware of how their behaviors affect others, and to understand that their needs are not more important than those of others. The key is to realize that you can show children and adults how they are perceived, you can teach them strategies to fit in, but they must choose to change.

Remember the Joy

Often when overexcitability is discussed, the examples and concerns are mostly negative. Do remember that being overexcitable brings with it great joy, astonishment, beauty, compassion, and creativity. Perhaps the most important thing is to relish and acknowledge the uniqueness of an overexcitable child or adult.

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SHARON LIND, M.S. Ed., is a private consultant for affective, gifted, and parent education. She focuses on emotional and social development; curriculum and program design; staff development; and guidance issues for grades K-12. She can be reached at sharonlind@seanet.com or 12302 SE 237th Place, Kent, WA 98031.

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WHAT'S THE POINT?

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students with a good education, but be prepared to help them cope with their bad experiences after they have discovered a great teacher or program. It is precisely that contrast that adds a sense of bitter irony to the pursuit of a great education.

Alienation in Junior and Senior High School

Most of my junior high and high school experience was a marked contrast to my class with Mr. Samide. Despite my occasional straight "A" performance, I had an absolutely horrible time! I was alienated from the rest of my peers; I was depressed a lot; and I hated the kids, the teachers, and the administrators. It was so bad at times that I even listed the school building and the tap water in the water fountains as everyday things I hated. Consequently, I ended up staying home frequently and missing a lot of school. At least once a year I would switch schools, and I had to repeat my freshman year in high school in hopes of wiping my records clean.

If I had no interest in a class, I would simply not put any effort into it. This meant that I would not do any of the homework, and that typically translated into an "F." By that point, I was already disenchanted with the whole notion of school as a learning institution and subsequently rejected grades as being a motivational factor or fair measure of learning. I found out that even if I received an "F" in a class, many times I would still take away more from the class than the students who got good grades. Everyone who tried to help me was fond of telling me that school was just a game that I had to get through and I should just learn to play that game. Once I was out, they said, I could complain about it as much as I liked, but no one would listen to me while I was still in school. However, I was stubborn and consciously chose not to play that game: I just accepted "F's" and continued my crusade to expose the hypocrisy of the educational institutions I was stuck in.

A favorite story of mine is of a biology class I had in my second freshman year in high school. I did very well during the first half of the year and had one of the highest grade averages in class. Later on, however, I started experiencing problems at school and stayed home a lot. My attendance was so sporadic in fact, that kids kept asking me whether I still went to that school or not. Suffice it to say, my grade in that class dropped from an "A+" to a "D-" by the end of the year. Fortunately, my teacher was very nice and believed in me so she let me take the final exam, despite the futility in it. Lo and behold I got an "A" on it! There was definitely no cheating involved, so she ended up with a dilemma on her hands: should she give me an "A" for what I knew, or should she give me a "D" for my lack of work in order to be fair to the other kids who worked hard for their grades? Well, to my great surprise and joy, she decided to give me an "A" because I had learned the material despite my "situation."

Geeks, Nerds, and Brains

I have found that the most difficult thing about being gifted is simply not having many people like yourself around. Unlike being a jock or being cool, there's no tangible, positive identity to which you can associate yourself with or model yourself after. There are only the geeks, the nerds, or the brains. These terms don't have universal meanings, but in my circles, a geek was someone who had a lot of knowledge, usually technical, which could be applied—like computer skills. A nerd was someone who had very esoteric interests such as bug collecting or trivia in which they engrossed themselves. The brain was the person everyone considered the smartest kid in school and was usually an academic performer with straight "A's." If you chose to accept any of them as who you were, the penalty was ostracism. I believe that if you put kids together with others like themselves, even for part of the year, they can begin to go through a normal childhood development.

Childhood is fraught with an endless series of rites of passages, and it's important to have someone who can help guide you through that. What saved me through my journey of educational institutions has always been programs in which I interacted with other kids like myself, or adult role models who understood me and weren't condescending. There will still be those who do not fit into even those environments; but the goal should be to have enough exposure to others similar to yourself so that you have a chance of finding others you can identify with. Once that occurs, you can begin to grow a foundation of emotional stability. Suddenly, there are people who understand you, understand your problems, and can be there for you. Having them helps you to have more confidence in your own identity and who you want to become.

Programs That Worked

In retrospect, I've been very lucky. My mother always strove to provide my sister and me with an extraordinary education. Every year she researched all the local and national programs she could find and sent us to them all year around. They ranged from extracurricular activities such as Suzuki programs for music, St. Louis area SAGE/FOG gifted workshops, an advanced math program called MEGSSS, classes for "talented youth" at local community colleges, and summer programs such as Northwestern

University's CTD program, Purdue University's GERI programs, and Johns Hopkins University's CTY program. There have been so many I can't even remember them all to give a complete list. The common experience that I had though, was that they were all fun environments in which I was free to learn without the threat of grades or ostracism from other kids. In those programs, I was with kids who were similar to myself so I didn't have to worry about being myself. Everyone there—both teachers and students—were there because they wanted to be. That made a huge difference! The summer boarding programs were especially great because there was an additional sense of independence. We had fun learning in the classes during the day and had a blast in the afternoon after classes were over. After experiencing all these programs I started to wonder, "Why can't school be like that?!?!"

It was not until I went to Simon's Rock College that I started to feel comfortable with myself and my peers. Simon's Rock is a college for high-school-age kids. However, what made this place such a valuable experience for me was not its academics; it was the people I found there. In fact, I ended up neglecting my academics, spending most of my time playing ultimate frisbee, volleyball, and staying up late. Consequently, I was kicked out after the first semester and was only there for a short time. However, while I was there I found a group of people whom I could relate to. For the first time in my life I had a circle of good friends whom I understood and who understood me.

My parents still believe that sending me there was a huge academic mistake, and I wouldn't sell it as the holy grail of educational solutions; but the truth is that it was a profoundly positive experience which irrevocably changed my life for the better. To this day, many of us who met at Simon's Rock are still very good friends and live near each other or at least keep in touch. To me, Simon's Rock's greatest asset is the sense of community it instills in its students. Whenever I meet someone who went to the Rock, there is instantly and automatically a shared bond between us. Just having gone there and experiencing that small community gives us something in common which transcends all of our experiences since leaving there. That sense of community is what I continue to look for no matter where I am because it helps me to get through the day-to-day activities of life.

I have experienced many extremes of education on the long journey of my academic career. I have known blissful learning as well as complete academic failure and everything in between. In the end, though, it's all the same. Whether or not I had a good or bad academic experience, what lasts to this day is what I got out of the class and the personal experiences I had while I was in those institutions.

Reflections

Today when I look at all the friends I've met over the years, I know for certain that they are all intelligent. Probably most of them were or could have been considered "gifted" when they were in school. What I have come to realize, though, is that the label no longer has any meaning to us. Together, we represent a diverse set of educational experiences; some of us have gone through private schools, while others have experienced the conventional public schools; and I have an eclectic mix of institutions and programs under my belt. Through it all we survived and emerged from our cocoons of education to find that our paths have converged on the same point. All of us have become well educated adults who work hard, have fun, and try to be socially responsible. Basically, we strive to be good people and decent citizens. So, in the end, no matter how we were educated, we've ended up in the same place; what remains and continues is the social bond that we have with one another.

Gifted kids are really no different than any other in terms of what they need during their emotional development. While growing up, adults always seemed to be too caught up in my "potential" and never my current state of being. I would plead to the parents and educators out there to pay more attention to how they are growing up instead of how much or how quickly they are learning. At least make sure they know that there are others like themselves so they know that they're not alone. They will learn for the rest of their lives, but they can only be children once.

There are numerous options for educating kids: public schools, private schools, magnet schools, home schooling, and boarding schools. If the "perfect" school is not accessible or a practical educational solution, strongly consider clubs, extracurricular programs, or summer programs tailored for gifted and talented youth as good supplemental experiences to regular education. I think, though, that no matter how you educate a gifted child, it is important to keep in mind that the true goal is to have a healthy, fully functioning member of society at the end of it. I mean, you may end up with the smartest kids in the world, but if they aren't happy and can't fit into society and apply that intelligence, what's the point, right? ■

ANDREW CHEN currently lives in Santa Clara, CA where he will be returning to school to finish his Bachelor of Science degree in Computer Science. He also plans to volunteer to work with gifted children in his community. He can be reached at: andrew_s_chen@yahoo.com.

RADICAL ACCELERATION

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dents, noting that children of IQ 180+ tended to be social isolates, not from choice but because it was almost impossible, in the regular school situation, for them to find children who shared their remarkable reasoning capacities, their unusually developed language skills, their interests, or their way of viewing the world, all of which were characteristic of children much older (Hollingworth, 1942).

Such children are placed in a "forced-choice dilemma" (Gross, 1989). If they want to develop their own abilities and pursue their own interests to the fullest, they must often sacrifice social companionship, because few children of their own age will take the time, or have the capacity, to engage in activities that are of interest to the extremely gifted child. If the need for social acceptance is stronger than the drive for achievement, then the gifted student may choose to severely moderate his or her achievements, and pretend to have the interests and abilities of his or her age-peers, in order to acquire a place in the social order of the classroom.

Silverman (1993) points out that, from the first years of school, gifted girls are much more skillful at concealing their talents by mimicking the behavior of the children with whom they are placed than are gifted boys. "[The gifted girls] are much more adept than gifted boys at imitation. They fit in by pretending to be less capable than they really are, disappearing into the crowd. Young gifted girls are rewarded for their compliance, and subtly taught to dull their sensibilities and intellectual acumen in the service of social acceptance."

Roshni, an exceptionally gifted Australian child of IQ 162, was reading before the age of 3, and by age 4 was writing letters to her relatives in Singapore on the family computer. Yet on entrance to kindergarten, Roshni stopped reading. She was receiving from the kindergarten, a subtle but definite message that 3- and 4-year-olds were not expected to read, and Roshni was anxious to conform to her teacher's and classmates' expectations. With tact, loving encouragement, and a good deal of patience, Roshni's parents were able to reassure her that she should not be ashamed of her reading ability, and after a few weeks she began to read again. The following year, however, on entering formal schooling, Roshni stopped reading again, and this time her deliberate concealment of her ability was much more difficult to reverse. It was extremely important to Roshni that she should appear "normal" so that she would be liked and accepted by her teacher and the other children in her class (Gross, 1992).

Gifted boys, on the other hand, either lack the requisite social skills or rebel against the task—and rightly so! They guard their individuality, but appear socially inept into the bargain (Silverman, 1993, p. 296). Silverman illustrates this point with an incident from one of Hollingworth's case studies of profoundly gifted children. A 6-year-old boy of IQ 18" was reported as "too immature for the work of first grade" because he would wander off in the middle of class, lie down on his back and look up at the ceiling. The child's mental age was 12, and he had the reading and math achievement of a sixth-grade student. He was bored to tears with the introductory math and reading instruction being presented to his class, yet he could not explain his dilemma to his teacher. His solution was to quietly "drop out" of the class and escape into the world of his own mind. When asked what he did lying on the floor, he said, "Oh, mostly mathematical calculations, or my imaginary land" (Hollingworth, 1930).

Unfortunately, the majority of gifted children who use the coping strategies adopted by Hollingworth's 6-year old, and by the 4-year-old Roshni, effectively disqualify themselves from consideration for academic acceleration, either because, like Hollingworth's subject, they appear "too immature" to be grade-advanced, or because, like Roshni they have become extremely skilled at disguising the degree of their difference. Yet, ironically, grade advancement to be with older students can provide, for these extremely gifted children, a social group in which they are more likely to find true peers—children who are at the same developmental stages as they themselves.

The Exceptionally Gifted Adolescent

Junior high school can be a critical period for extremely gifted students. The onset of adolescence involves the formulation of a personal identity, and this is facilitated by the development of a group of supportive and intimate peers (Steinberg, 1985). This can be problematic for gifted adolescents who differ, in most areas of their development, from the majority of students in their chronological age cohort. The adolescent peer culture is noted for its intolerance of deviance from its standards and conventions (Coleman, 1960; Tannenbaum, 1983) and extremely gifted children may already have been aware, from an early age, of both the nature and full extent of their difference (Gross, 1993). Janos, Fung & Robinson (1985) found decreased self-esteem in gifted students who perceived themselves as "different."

For the last 10 years this author has undertaken a longitudinal

study of the academic, social, and emotional development of 45 exceptionally and profoundly gifted Australian students. The considerable majority of these remarkably gifted young people has been retained, full time, in the regular classroom with minimal, or no access to other students who share their abilities or interests. A few have been permitted a single grade-skip of 12 months—an intervention which is admirably suited to the needs of the moderately gifted, but does little to assist the extremely gifted student unless it is followed up with further grade-skips later in the child's school career. The majority of the study children have practiced a deliberate and sustained underachievement for peer acceptance since their earliest years in school; indeed, many cannot recall a time in their lives when this has not been an automatic survival mechanism, accepted as a painful but necessary part of living (Gross, 1993).

However, these extremely gifted young people are only too aware that they differ radically from age-peers in both their academic and emotional development, and that their efforts to conform to the dictates of the peer culture have had, at best, moderate success. The self-esteem of the children in this study has been measured on the *Coopersmith Self-Esteem Inventory*, which is designed to measure evaluative attitudes toward the self in social, academic, family and personal areas of experience. Although the academic self-esteem of the study children is positive, the majority of the children score more than one standard deviation below the mean on the subscale which measures social self-esteem. They are poignantly aware of the degree to which they are disliked and rejected by their age-peers. This is not a false perception; the parents and teachers of these students also report, in interviews and school reports, their concern regarding the low self-esteem and social isolation of those highly gifted students who are confined, full time, to the regular classroom.

However, 9 of the 45 study children have been permitted radical acceleration, and are now working, in junior high, high school, or college, with students three or more years their senior. It is significant that the only students in the study whose social self-esteem is more than one standard deviation above the mean are those who have been radically accelerated. These young people are permitted to work and socialize with other students some of whom, at least, are at similar stages of intellectual and emotional development. They have access to classmates who share, or can at least empathize with, their interests, their delight in intellectual inquiry, and their ways of viewing the world. They are enjoying the social pleasures of adolescence while, at the same time, experiencing the intellectual satisfaction of challenging academic work. Fred, Christopher, and Sally are three of the study students who have entered college some years earlier than is usual.

Fred

Fred Campbell entered 11th grade two weeks before his 14th birthday. He is an extremely able and multi-talented student, with an IQ of 162. At the age of 12 years 1 month he scored 640 on the SAT-M and 500 on the SAT-V. He had taught himself to read shortly before his third birthday and shortly afterwards had acquired the basic skills of addition and subtraction. He is, furthermore, a highly gifted artist.

Fred was bitterly unhappy in elementary school and junior high school. Like many exceptionally gifted students, he had an overwhelming thirst for knowledge and by the age of 9 he was reading deeply in many fields, including psychology, art history, and adult science fiction. In elementary school, however, he was a social outcast, derided and rejected for being different. His classmates were quite unable to understand his passion for music and mathematics and his concern for social justice. They taunted, derided, and attacked him mercilessly, and made his life a misery. The school refused to offer Fred any form of differentiated curriculum. Their attitude was that he would be more readily accepted if he would stop "trying to be different," take a "healthy interest" in sport, and work at the level of his class. This echoes, disturbingly, Tannenbaum's findings, in the early 1960s, that academically brilliant students were tolerated in the American high school community only when their academic talent was accompanied by a keen interest in sports or athletics (Tannenbaum, 1962). Ironically, Fred had won his school's swimming championship and was placed third in his age group in a prestigious regional swimming competition, but he had little interest in sports as such, and even less interest in the Monday morning post-mortems of weekend sporting events indulged in by the other boys in his school class. Fred's undervaluing of a talent valued so highly by his classmates must have made him seem even stranger in their eyes.

Finally, in desperation, during Fred's fifth grade year, his parents approached the local high school (most Australian high schools comprise seventh through 12th grade) and asked the principal whether they would consider admitting Fred a year early. After meeting Fred, and noting his academic achievements and his emotional maturity, the principal agreed enthusiastically. Consequently, at age 10 Fred entered seventh grade and the following hear he was based in eighth grade

but took math and chemistry with 11th grade students. This combination of grade-skipping and subject acceleration was so successful that he was next permitted to skip ninth grade while continuing his subject acceleration in math, science, and computing. He graduated from high school in 1992, a few weeks before his 15th birthday, and currently, at 17, is in his second year of college where he is pursuing a science degree specializing in math, physics, and chemistry.

Both academically and socially, radical acceleration is, in Fred's own words, "the best thing that ever happened to me." His 11th grade year opened up a world of social relationships that he had never before experienced. For the first time, he had access to students who understood and valued him, and accepted him as one of them. He has had no problems adjusting to college life; he is where he feels he belongs, and he feels much at home. At 17, his friends are 19 and 20, and he says he has even more friends than he had at high school. Life is very different from the enforced segregation by chronological age that Fred experienced for his first five years of school.

Christopher

Christopher Otway is, like Fred Campbell, a remarkably gifted young man. At the age of 11 years 4 months he achieved the remarkable score of 710 on the SAT-M and 580 on the SAT-V. By the age of 4, he was capable of working at fourth grade level in math, and was reading children's encyclopedias with full comprehension and enjoyment. Chris' schools have permitted him an unusual, and highly effective, program of radical acceleration.

From the beginning, Chris' teachers responded to his academic and social needs. He was withdrawn from his first grade class each day to work with fifth grade in math and second grade in English. At the end of second grade, he was permitted to skip directly to fourth grade, and his subject acceleration continued, with Chris attending eighth grade for math, and starting flute lessons with eighth grade in recognition of his obvious aptitude for music. Several of the extremely gifted students in this Australian study also display high levels of musical precocity (Gross, 1993).

Chris' program of grade-skipping and subject acceleration has been extremely successful. In 1989, aged 12, he was based in ninth grade with students two and three years older than he, but took physics, chemistry, English, math, and economics with 11th graders who were already 17. He entered 10th grade in 1990, a few weeks after his 13th birthday, but rather than accelerate to 12th grade for individual subjects, he chose to "repeat" 11-grade in different curriculum areas, this time selecting English, legal studies, Australian history, accounting, and biology. In 1991 he entered 12th grade and took, at college entrance level, the five subjects he had taken in in 1990, and in 1992 he "repeated" 12th grade, taking, in a similar manner, the five subjects he had taken in 1990. It was Chris' own decision to undertake this somewhat unusual method of acceleration. He felt he would not yet be ready, at 13 or 14, to enter college, and he was enthusiastic about the opportunity to broaden his education by taking 10, rather than the usual five subjects in 12th grade studies. Interestingly, in both his 12th grade years, he "graduated" as one of the top students in his state.

Christopher entered the most prestigious university of his state two months after his 16th birthday. He is now in his second year of a double degree in mathematical science and economics. Like Fred Campbell, he enjoys both the academic and social side of university. Only a few weeks after enrollment he joined the university's Science Fiction Association and was promptly elected to the committee. One of the benefits he has experienced from the many university clubs is that these give him access to students at all different levels of the university. Although he formed several good friendships with the other first-year students, who were two or three years his senior, he also enjoyed the company of second- and third-year students. Like many exceptionally gifted students, even in later adolescence, Chris prefers the company of people several years older than himself.

Sally

Sally Huang, age 13, has a phenomenal gift for mathematics, and her English abilities are similarly astonishing. By the age of 2, Sally could read the daily newspaper, and by age 7 she was reading medical textbooks brought home by her father, a doctor.

Sally is a well-rounded young woman who has won numerous prizes for music, debating and academic excellence. She speaks fluent Chinese and Japanese, is an accomplished pianist, and holds a first-dan black belt in Tae Kwan Do.

Sally's elementary and high schools, in a large country town, allowed her radical acceleration through a series of carefully planned and monitored grade-skips. She entered seventh grade at age 9, and progressed swiftly through the grades of high school, completing 12th grade at the age of 13.

Sally has had a few gentle confrontations over the years with teachers who were reluctant to let her progress at her own rate, but she is a determined and confident young lady who expresses her feelings politely but with a quiet conviction, and in general her

teachers have acceded to her wishes. It was Sally herself who requested that she skip from fifth grade to seventh grade, as she was finding the work of the younger grade rather unrewarding.

In February 1994, at age 13, Sally entered her first year of study in a large university in the capital city of her state. (The Australian academic year runs from February through November.) Her studies focus on the physical and mathematical sciences, but she has also continued with her language studies and music.

Sally experienced no particular nervousness about her entry to college. She spent some time on campus while in 11th grade, as part of a high school work experience program, and enjoyed the academic and social atmosphere. As she calmly points out, being with people older than herself is hardly a new experience, as her program of progressive acceleration through school has allowed her to work and socialize with older students for virtually her whole school career. She prefers to be with people older than herself and is valued and accepted by them.

During the week, she stays in the home of friends of her parents, within easy traveling distance of the university, and travels home each weekend. This gives her ongoing access both to the social life of the university, and to her parents and older sister with whom she has a close and warmly supportive relationship.

Conclusion

American and Australian research on the academic and social development of exceptionally and profoundly gifted students has found no evidence that social or emotional problems arise through well-planned and carefully monitored programs of radical acceleration. Rather, research suggests that we should concern ourselves with the maladjusting effects on these gifted students of being held for prolonged periods in same-age educational placements.

In Gross' study (Gross, 1992, 1993) the extremely gifted students who have been radically accelerated and their teachers and parents, believe strongly that they are now much more appropriately placed, both academically and socially. These students display higher levels of motivation than they displayed when they were grouped with age-peers, they report that the pressure to underachieve for peer acceptance has significantly diminished or has disappeared completely, and they enjoy closer and more productive social relationships than they did prior to their acceleration.

Contrary to popular myth, extremely gifted students who enter college early have few regrets at "missing" out on the traditional social activities of high school. They are more than willing to pass up "the prom" for the chance of intellectual challenge and satisfying peer relationships (Noble & Drummond, 1992). Ann Eisenberg, who received both her bachelor's and master's degrees at Johns Hopkins University at the early age of 20, comments frankly on her radical acceleration:

> I think that what worries bright girls the most, and what keeps them from accelerating, is a fear of being different and, as a result, unpopular. I was never Homecoming Queen or the most popular girl in my class, but at least I've had the chance to be myself which, incidentally, is what feminism is all about. If there are some people who dislike me because I'm "too smart," I'll live through it because those aren't the people I'd want for friends anyway. In fact, the only real problem that I have being a 20-year-old graduate student in Berkeley is that the drinking age in California is 21! (Eisenberg, 1979, p. 5).

Radical acceleration would be unsuitable for the moderately gifted student, whose intellectual and psychosocial development are not as advanced as those of the exceptionally and profoundly gifted. However, for the extremely gifted, placement with students not simply one year, but several years, beyond their age, has strong beneficial effects on their social adjustment, when the acceleration occurs through a series of carefully planned and monitored grade-skips.

The major problem is, however, to convince educators of this. Of the 45 students of IQ 160+ in Gross' study, all of whom would benefit from radical acceleration, only nine have been permitted this form of intervention. This is disturbing, but hardly surprising, when one considers the degree of teacher opposition to acceleration itself.

Grade placement by chronological age is not divinely ordained, as Carol, whose quote began this paper, wryly suggested; it is an administrative convenience. Exceptional students are surely those for whom their schools should make exceptions.

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MIRACA GROSS, Ph.D. is Professor of Gifted Education at the University of New South Wales, Australia and the author of *Exceptionally Gifted Children*. She is also a frequent presenter in the United States.

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HEART AND SOUL

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I sit in front of my homework, and can not do it. It is like one rope pulling you one way and another rope pulling you the other way."

Such a child feels helpless and cannot listen to either voice—outside demands or inner pressure. This results in stagnation. Her understanding of math concepts is outstanding and even though she is driven to learn, she can't. Procrastination within this context is a sign of giftedness.

Perfectionism

Many gifted children are like a little Plato; their giftedness allows them to envision the perfect teapot and so they feel the inner pressure to create it. They have to be perfect because they know what perfection is. Many young gifted children shy away from drawing because they can envision the perfect picture, the perfect house, and they haven't developed the fine motor skills to accurately reproduce it. Perfectionism inhibits the child from performing or practicing, for fear of failure.

Also, it is almost unbearable for the gifted to see imperfections unrecognized, for instance, when the teacher makes mistakes which are obvious to the child, but unacknowledged by the teacher. Frequently, for example, a child has a better solution for a math problem and innocently confronts the teacher. This often makes the teacher defensive and conflict ensues. The need for perfection is a sign of giftedness.

Sense of Justice

This is also the result of perfectionism. It stems from depth of insight and empathy. It leads to numerous clashes. Here's an example. A very shy, very gifted 7-year-old boy told me that he didn't like school because the teacher tore up his friend's drawing of a dragon because it didn't look the way the teacher thought it should. He explained with the most sophisticated vocabulary that his friend was an expert on dragons. He was overcome with anger and so concerned for his friend, he forgot his shyness, unexpectedly stood up and in a loud voice, told the teacher how unfair she was. Gifted children become the judges of adult behavior and are puzzled and hurt when we fail them. They then react with frustration or anger and are seen as the problem.

When these behaviors are misunderstood it can create a vicious cycle. Adults begin to worry about the child who disrupts the procedures and become convinced there is something wrong with the child. The child feels devastated and afraid of disappointing the parents. The diagnosis from experts begin to appear: learning disabilities, ADD, socialization problems, immaturity, even Asperger's Syndrome. Their giftedness becomes a liability. Gifted children whom I see in my consultation service tell me that they wish they could just be normal. Giftedness comes all too often with a burden of assumed abnormality.

There are of course true learning disabilities. It's important to differentiate between giftedness and pathology. It is always an experience for me when I can explain this distinction to parents. I explain that it is the environment which imposes goals and standards that are inappropriate. We must change the expectations of the environment, not change the child. They seem to feel relieved and empowered and it's as though they have been given permission to love their child unconditionally.

As the crucial factor in the free evolution of the child moving through the developmental phases, parents are caught in the middle and do not know whom to trust. Should they follow the child's inner agenda, or the expectations of the environment?

Parents often feel the obligation to protect their children by insisting that they embrace the point of view of the system. Unfortunately, this often results in children feeling more isolated because they have to engage in a struggle with the parents. Those children though, who feel the unconditional love from their parents, and feel that the parents are on their side, can weather the negative effects of not being understood by the system, and can still blossom. Parents are the true life-line, especially for the gifted. No child can grow without being positively recognized. It is no exaggeration that unconditional love is the most important means of education.

A New Trend

Recently I have noticed an encouraging new trend. I am astounded by the subtle but important changes I observe in the attitude of parents. They used to wonder about what they could do to help their children adjust to our competitive society. More and more however, they are asking such questions as, "Who is my child, really?" "How can I better understand my child?" "Where do I find a learning environment which will be both accepting and understanding?" "How can I change the system to fit my child?"

An example: Mary, age 8, feels unconnected at school, a loner. Her parents brought her to consult with me about finding an appropriate learning environment. Her giftedness was exhibited in her sophisticated conversation and detailed knowledge of animal behavior. She arrived clutching a little box. We played and talked, and all the while I waited for her to open the box. When I asked her when she planned to open it, she told me that it was nailed shut. My curiosity grew. Finally I learned that she had been heart broken over the death of her cat. Her loneliness had increased. Her parents who are empathetic and spiritually very connected with her, had the cat cremated and allowed her to keep the ashes in the box always with her. This child seemed content and her

spirit remains unhindered because her parents acted upon her needs. Her parents' insightful, unconventional support is like a shield for this gentle child against the harshness she feels from her school environment.

If we begin to allow ourselves to be guided by the agenda of the Self, a door opens to finding alternatives. Society's judgment is no longer seen as absolute. We find that it is possible to meet individual needs and society's needs in many alternative ways not yet explored.

Children who are seen as having difficulties at school and chafe under the teacher's expectation, may no longer be seen as the problem. Sometimes their grades tend to be low, not because of such things as attention deficit, but because of attention focused elsewhere. If we listen to our inner voice, it may tell us that the problem is more complex.

Many highly gifted children and adolescents may want to write a book, or a symphony, build a car, follow their dreams. I have seen several 9- and 10-year-olds, who with their parents help, are happily piecing their own educational structure together. For instance, they may be taking a few subjects at their regular school. The area in which they excel, such as math, may be pursued in a community college. They may spend the rest of their day studying violin, skating, science, or whatever they are passionate about.

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When we honor their inner agenda, children feel a sense of freedom and power. They feel more accepted. They are no longer bumping up against external roadblocks and they no longer feel bored and worthless. It is evident that they develop less behavior problems, such as procrastination, and are more likely to find enjoyment in their learning environment.

I believe their contribution to society will be greater than if they had followed the usual course. This does not mean they will be protected from the vicissitudes of life. What I am describing here is clearly the beginning of a movement which has not yet penetrated to the core of society's attitudes.

There is evidence of pressure for change, mostly coming from children and they are forcing us to listen. They are showing us alternative structures for growth and learning. This constitutes a major change in attitude.

In the wake of these evolving perspectives, the goal of education must change from a model of adjusting, fixing, shaping, and remolding the child into our expectations. Education must take the lead in creating a new model based upon supporting the growth of the child, creating a comfortable niche for the highly gifted. This would allow them to reach for the stars. The first step in bringing about this change is to recognize that giftedness shows in the emotions of the child.

Emotional Evaluation

By understanding emotional characteristics as clues for identifying gifted children, our evaluation methods allow us to tell the degree of giftedness. For example, the more highly gifted children are, the greater is their command of language and symbolic thinking, memory, ability to find creative solutions to vexing problems, and such things as knowing how to handle the computer by the age of two. We understand that the more highly gifted children are, the more their emotions vary from others—they are more sensitive and intense. The nature of their experience is different. The more highly gifted, the greater the dissonance between them and others. They are the most finely tuned instruments which could play the most beautiful music if we allowed their music to be heard.

Understanding the complex structure of emotions and the Self of the gifted is what is missing in traditional assessment of giftedness. Only if we include this consciousness will we be able to do justice to the needs of the gifted and the highly gifted. Only then will they have the chance to develop their Self and their inner agenda. Assessing the emotions must become an important part of any evaluation.

In empathetic assessment of the emotions, we experience the child through a variety of verbal and non-verbal clues, we listen and interact with both child and parent, and our non-judgmental receptivity brings forth a desire to communicate on the part of the child. The child shares his interests, knowledge, and feelings. It is just as important to describe what we are not doing. We bring no agenda, no prepared list of questions, no preconceived expectations, and no judgment. Each session is a surprise and no two are alike.

The evaluator becomes the instrument for evaluation and receives the child as a whole being and listens to the child's impressions. The evaluator must try to be aware of the inner obstacles to a free reception to the child's Self. At our center, we use two evaluators who together can provide even better understanding The amount of information gained in this unjudgemental way is often amazing.

In fact, we gain such specific information we are able to predict the IQ score without the use of standardized testing. We have literally hundreds of cases where our assessment closely coincided with the recorded IQ, and much additional insight is gained.

In the SAI model, we realize the evaluation itself is an intrusion into the life of another human being and may impact self-image. We are aware that our conclusions may influence attitudes and decisions that have important bearing on the future as well as the present. The family may see the child in a different light depending on the result of the evaluation. The IQ score is never forgotten.

The evaluator must therefore take great responsibility for the manner in which the results are communicated. It's not enough to send a form letter. Either a detailed comprehensive letter or a post-assessment consultation is required to do justice to the richness and sensitivity of the information. Results that differ from the expectations must be handled carefully and gently.

Educational perspectives have been based on behaviorism and most of the research about gifted children has been in the area of cognition. In shifting our attitude to appropriately include the affective dimensions, individuals who are assessing, teaching, and parenting gifted children are seeing a whole new vista open up. Psychology, education, and spirituality are merging into a new perspective. There is much we can learn from each other which can enrich our view of the world and profit the future of gifted children and all children.

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ANNEMARIE ROEPER, Ed.D. was headmistress of the Roeper City and Country School for Gifted Children for over 40 years. Also a noted author, she can be reached at 2089 Tapscott Ave., El Cerrito, CA 94530 or at 510-235-3173.

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TO SUFFER FOOLS GLADLY

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- #6 We feel too different and wish people would accept us for what we are.

Some parents and others who care about highly gifted children are astonished by the sensitivity, compelling compassion, and vivid memory of these children, and are prone to exalt them. We're all familiar with stories of high expectations imposed on highly gifted children. Sometimes they are elevated to be paragons of virtue. But what burden does this impose on them?

Some gifted adolescents live with fear of failure, some degree of perfectionism, and success depression. Success depression results from unrealistically high expectations of themselves or attributing their success to external factors. "...success depression is associated with continual success and the stress of maintaining that continual success. Because their experience with failure is often so slight or even nonexistent, their ability to deal with failure is often below average and sometimes even debilitating (Farrell, 1989)." We may not be conscious that highly gifted adolescents can be adept at masking depression and have highly developed defense mechanisms. This brings us to the front lines and trenches of suffering fools.

Let's reflect on how we might be handicapping our highly gifted children by trying to mold them to fit our expectations—the proverbial square peg, and round hole. It is not only their development that is asynchronous, but what is expected of them!

We want children to be able to adjust to others in a positive way, but we do not want them to lose their individuality and selfhood during the adjustment process. They should never be asked to adjust to cruelty and injustice in the name of getting along with others.

Many highly gifted children experience intense emotions, vivid imaginations, and astute intellectual abilities, and thus, react strongly to unfairness, injustice, and insensitivity encountered in everyday relationships. Oftentimes those experiences lead to strong negative feelings: pain, anxiety, inclination to excessive frustration, inner discomfort, alienation, sometimes depression, and moral obsessions. Those feelings are not and should not be considered pathological. They are appropriate responses of a sensitive, emotionally developing individual to the relatively insensitive environment. These very sensitive, aware children signify a high level of moral judgment and emotional development and are an expression of an important developmental dynamism called "positive maladjustment."

Positive maladjustment is a term from Dabrowski's Theory of Positive Disintegration (1972). It means adjustment to the ideal, to "what ought to be" while not adjusting well to the negative "what is." Cruelty, insensitivity, opportunism, dishonesty, and other pathological symptoms sometimes characterize our everyday life. When we look at how highly gifted children relate to their world, we frequently see very pronounced signs of positive maladjustment in their thoughts, feelings, and actions. They feel strongly about what they see to be wrong with the world. This dilemma is intensified since, as children, they lack the life experience that leads to understanding subtle, complex motives behind people's actions. For children, it's difficult to consider that other people's motivations are different or opposed to their own. Thus, they may react with hopelessness and helplessness. If such despair is prolonged and not coupled with positive developmental dynamisms and support from their families, it may lead to more negativism, cynicism and withdrawal from the world.

In Dabrowski's theory, developmental dynamisms are forces controlling our behavior and development. They stem from "instincts, drives and intellectual processes combined with emotions (Dabrowski, 1972, p.294)." Developmental dynamisms are responsible for directing our emotional growth from the lower level egocentric, impulsive, and largely unconscious behaviors toward more inhibited, reflective, and altruistic actions typical for higher levels of development. Developmental progress is expressed as the growth of understanding and concern for others. This development includes recognizing how we need to improve ourselves. Some examples of positive developmental dynamisms include feeling guilt and the ability to recognize and appraise the virtue of our personal values and behaviors. To elevate ourselves to a higher level, we need self-education and inner transformation including empathy, responsibility, and self-control. This leads to being able to independently evaluate and control our own lives according to our own consciences. We often observe highly gifted children who are acutely aware of their own inner lives, the feelings of others, and the values observed in the world around them. In many we see signs of inner and outer positive maladjustment protest against the cruelty and insensitivity in their environment.

The Case of Vera

Vera is six. She has strong emotional, imaginational, and intellectual overexcitabilities, is introverted, extremely sensitive, and fearful. Although no one close to her has died, Vera often thinks about people dying and these thoughts make her cry. Empathic and compassionate, she tries to rescue and protect stray animals and suffering people. She is easily hurt by criticism; even playful teasing can bring her to tears. When Vera sees other children being teased or slighted in any

way, she reacts with sadness and repeatedly remembers and relives those situations.

Vera sometimes refuses to go to school in the morning, afraid she will have to witness her teacher's insensitive treatment of one of her classmates. "I feel bad. I should help him," she says, "but I'm afraid the teacher will yell at me when I do."

Once when her teacher offered her two stickers as a reward for very good performance on a test, Vera asked if other children also get two stickers. When told that most of the children get only one, she said, "Then I should not get two, either."

When Vera was asked why she often stands and observes other children playing during recess, and does not want to join them, she answered: "I would like to join them! But they look like they're having so much fun that I do not want to interrupt them." Vera also collects old objects which others throw away. "They are still good," she explains shyly. "And there are people who may need them."

Vera's behaviors are expressive of her strong overexcitabilities; we already see precursory forms of many autonomous developmental dynamisms: positive maladjustment in her refusal to tolerate cruelty or wastefulness, dissatisfaction with herself, empathy and responsibility in her desire to rescue and shelter stray animals, even dawnings of her ability to put others' needs ahead of her own. In Vera's thoughts, feelings, and actions, we can see strong indications of a growing inner psychic milieu.

Helping Our Children

We want our children to function from the level of positive maladjustment, from their ideal vision of "what ought to be." We want our children to maintain their sensitivity and their compelling moral acuity. But we do not want them to become victims to cynicism and negativity. This involves a delicate balance to preserve their independent and astute judgment while appreciating other people. Parents and teachers can create lessons in negotiating skills and conflict resolution to strengthen children's influence over their lives and their moral concerns.

It is essential that our children recognize that people act from different motives and that no one's behaviors are always rational, justified, moral, or informed. Still, the person does not deserve to be condemned. Our highly gifted children need to acknowledge that they are not expected to be entirely virtuous either! Studying ethics can give all of us a more compassionate perspective.

Home and school offer valuable opportunities to practice tolerating and valuing differences. To help ourselves and the children we care about develop appreciation and understanding for themselves and others, we invite you to explore some provocative ideas from an inspiring book, *The First Honest Book About Lies* (Kincher, 1992). It is like receiving wisdom from a caring friend who gives a humbling perspective on the precariousness of being right. We sometimes suggest, "If you buy just one book for your highly gifted child, get this one." Ideas from this *Honest Book* will help us and our children balance persevering independent and astute judgment, with maintaining tolerance and appreciation for others.

Understanding their own developing selves will help them see others as unique individuals, deserving respect and compassion. Early in psychology classes we learn: You can't change another person; you can only change yourself. That is, you can change your attitude and what you do and say. Such an approach will nurture kindness and readiness to help others, while developing a decisive stance against cruelty and injustice. As painful as it is to our children, we do not want them to close their eyes to the injustice taking place around them, or learn to explain it away in meaningless terms like "such is human nature," or "people are only people." There are ways we can foster a child's emotional resiliency and self-awareness which lead to valuing their uniqueness and identity.

For the younger children, *Just Because I Am: A Child's Book of Affirmation* and *A Leader's Guide to Just Because I Am* (Payne, 1994) are soothing reinforcers for self efficacy and reservoirs of personal worth, independent of achievements and other people' behaviors.

Children with the highest intelligences do not necessarily demonstrate emotional and moral superiority—some do, others do not. Without emotional sensitivity, especially to the social environment, highly intelligent people can do great damage. As parents and teachers, one of our most potent teaching methods is our own modeling. We teach what we are. Pay attention to what you are mentoring and consider ideas to imbue resilience and self respect in children.

When we pay attention to what highly gifted children tell us about the state of the world around them, we see how acute and burning their moral and emotional concerns are. They express a strong desire to work toward self-perfection and make the world a better place. If their own concerns and unique ways of interacting with the world are respected, they also learn tolerance for others and the ability to employ their creativity in valuable service. This is a strong antidote against meaninglessness and negativism, against sarcasm and alienation. Through developing self-awareness, self-criticism and self-control, we learn to guide our development more consciously. We also increase our abilities to resolve conflicts in our environment. Many highly gifted children have a heightened potential for developing levels of insight and understanding that will lead them to not only direct their own development, but also

help others do the same.

Some useful guidebooks to help children become solution creators as well as problem finders are: *The Kids Guide to Social Action: How to Solve the Social Problems you Choose*—and *Turn Creative Thinking into Positive Action; The Kids Guide to Service Projects: Over 500 Service Ideas for Young People Who Want to Make a Difference*; and *What Do You Stand For? A Kid's Guide to Building Character.*

There are situations and people's behaviors no child should endure—nor feel responsible for: finding the right amount of stimulation at school, or putting up with being teased, taunted, and harassed; or agreeing with thoughtless, insensitive and harmful decisions of those in authority over him. Perhaps this is what Hollingworth had in mind when she wrote of "fools."

But, you know, in all our reading, writing, and discoursing, if we would delete the "highly gifted" or even "gifted" adjective, there are universal human tasks that all people must learn or deal with in their lives—they do not apply only to gifted. We all need to learn the tolerance and respect, if not love, for each other—gifted or not.

"And now here is my secret, a very simple secret: it is only with the heart that one can see rightly; what is essential is invisible to the eye."

—Antoine de Saint-Exupery, *The Little Prince*

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ELIZABETH MECKSTROTH M. Ed., M.S.W. is the coauthor of *Teaching Young Children in the Regular Classroom* and *Guiding the Gifted Child: A Practical Source for Parents and Teachers.* She can be reached at BetMeck@aol.com.

ELIZABETH MIKA, M.A., LCPC works in testing and consulting with families of gifted children. She may be reached at elamika@yahoo.com.

INTERNET

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respond with a post explaining the mailing list guidelines, how to post to the list, and other commands that are handy to know. Keep this message for future reference! You will then receive individual mail messages that are posted to the list, and be able to post your own questions and comments to the list. The Precocious & Prodigious (P&P) board is a public bulletin board, http://disceserver.com/Indices/9457.html where anyone can read, post, and reply to messages without subscribing. Though this is a more public resource (anyone can read it), it is monitored, so readers will not find flames (nasty messages), advertisements, or other inappropriate posts here.

The knowledge that you are not alone, that your children are not the only ones like them, that others fight the same battles, and can offer new and different ideas and solutions, can be a great comfort and support to the family of the highly gifted child.

Real Life Support, Internet Style

There are two support organizations for the highly gifted child available on the Internet. The National Gifted Children's Fund (NGCF), www.ngcfcharity.org, offers financial support for families of the highly gifted, with grants for educational programs that might otherwise be unavailable to highly gifted children from lower socio-economic backgrounds. To make this possible, NGCF accepts grants and donations from individuals and organizations interested in the education of highly gifted children, often highly gifted ex-children who are now in a position to "give back" to their community. The Davidson Young Scholars program, www.davidsoninstitute.org, offers various forms of support and networking for families of profoundly gifted children, which they designate as IQ 160+. Young Scholar support ranges from gatherings of a small number of families for parent

networking with simultaneous children's programs, to telephone, Internet, or even real life support of experts in parenting and educating highly gifted children, to financial support (if needed) for programs and products to benefit the profoundly gifted young scholar. Both programs require an application and approval process.

Sites for Highly Gifted Children

One characteristic of the highly gifted child tends to be a passionate interest in areas of study that often go unnoticed by other children, or at ages when other children don't even realize these topics exist. And that's where the Internet can help again. An easy starting point for research on such topics is Hoagies' Kids and Teens Page, www.hoagieskids.org. Here you'll find two pages of links for kids and teens, with topics from the Metropolitan Museum of Art to authors from Eric Carle to Shakespeare, to 4000 years of Women in Science, to Terra Server, satellite photos of nearly anywhere on the globe! On the Math and Science page there are links to sites in math, science, geology, geometry, physics and more. Don't miss the virtual stock market, or the virtual frog dissection lab. And hundreds more links on practically any topic to interest the highly gifted child.

Book lists abound on the Internet, but several stand apart for highly gifted children. Stephanie S. Tolan, www.stephanietolan.com, is both a children's author and an expert author and speaker on raising highly gifted children. Her novels feature gifted children, and often appeal strongly to highly gifted children, with books for the child, middle reader, and young adult, and their parents! And parents and educators shouldn't miss "Is It A Cheetah?"—an excellent metaphor for the gifted child in school. Hoagies' Hot Topics, www.hoagieskids.org/bok_mat.htm, is a list full of books on topics that tend to interest the highly gifted child, like math for the preschooler, or physics for the elementary student, genetics, history, and more. And the American Library Association (ALA), www.ala.org/parents lists include the Newbury and Caldecott award winners for over 50 years.

Internet Safety for the Highly Gifted Child

Internet safety issues really don't differ for the gifted child from any other child. While the Internet is full of great resources and information, it is also splattered with things we would rather not expose our children to at any age. There are differing philosophies on protecting our children while they "surf the 'net." This subject is covered in detail in many parenting magazines; here's a brief summary of the common options:

There are Internet services, such as AOL, that offer special child protection features. While handy for very young children, these features usually prevent highly gifted children from very valid research, and restrict access to scores of perfectly innocent web pages. Third party software such as NetNanny, SurfWatch, and others, offers more adjustable protection, restricting access to specific types of sites, and are configurable by parents. Some parents prefer to restrict child access to the Internet to times when parents are supervising, often placing the computer in a 'public' location in the house, such as the kitchen or family room. Internet browser software's History option allows access to the last several weeks of sites visited. This is a useful review option for parents, until the child learns how to clear the history file.

More Resources...

No article on Internet resources for the highly gifted child would be complete without mention of Hoagies' Gifted Education Page, www.hoagiesgifted.org. While Hoagies' is not dedicated exclusively to the highly gifted, it contains many useful resources for the parents and educators of these children. Highly Gifted, www.hoagiesgifted.org/high.htm, contains a variety of resources and subjects pertaining to highly gifted children, including pages on Academic Acceleration, Early Kindergarten Entrance, and Testing and Measurement. It also has a page of articles, books, and resources on the highly gifted child in general.

Educational Programs, www.hoagiesgifted.org/tag-ed.htm, lists programs that help highly gifted students as young as elementary school age with academics at a more appropriate level and pace, including EPGY (Stanford) and Math and Writing Tutorials (Johns Hopkins). On-line courses at various levels, including high school, AP and college courses available to the younger student, are also listed here. Early Entrance College programs, www.hoagiesgifted.org/college.htm, offers a list of the programs specially designed for the very early college entrant, whether entering after the junior year of high school, or immediately after middle/junior high school. This page also includes articles and testimonials on the often-immeasurable value of these programs to the highly gifted student.

The Internet is full of resources for highly gifted children and their families. This is only the beginning. ■

CAROLYN KOTTMEYER is the webmistress of Hoagies' Pages, as well as several other websites for and about the gifted, including Hollingworth Center for the Highly Gifted Child (www.hollingworth.org) and SENG – Supporting Emotional Needs of the Gifted (www.SENGifted.org). She is a member of the SENG advisory board, and the parent of two profoundly gifted girls, living in the mid-Atlantic United States. Beginning with the spring issue of the *Communicator*, Carolyn will be a regular columnist regarding web resources.

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If you are *not* already a CAG member, please use the application below to become a continuing supporter of gifted education. CAG is active in lobbying efforts to promote appropriate education for gifted and talented students and assigns $5.00 of each membership to CAG/PAC, CAG's Political Action Committee. Dues payments are not tax deductible as charitable contributions for federal income tax purposes.

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